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## ORIGINAL ARTICLES.

### INFLUENZA COMPLICATING THE PUERPERIUM.\*

By WILLIS HALL, M. D., St. Louis.

This subject from my view point is one of extreme interest in that it occurs rarely, as evidenced by the scarcity of literature in the textbooks and the journals.

And that obstetricians almost as a body have held for many years that extraneous influences, such as milk secretion, typhoid, influenza and malaria, especially, have not much weight in the causation of temperatures during the puerperium. In the case which prompted this writing, malaria and typhoid were excluded by blood examinations, there was no local or general sepsis, there was no offensive or suppressed lochia, no peritonitis, no tenderness of the uterus or appendages, so the diagnosis of influenza was made and treatment followed along those lines. The delivery occurred during a more or less widespread epidemic of influenza in December, 1903, when all forms of disease were influenced by its prevalence. The history of the case is as follows: Mrs. L., æt. thirty-two years, American, in good condition

throughout gestation, ii para. First labor a difficult forceps delivery, recovery good. Second labor normal as to mother, child stillborn, again made a good recovery.

December 17, 1903, 1 P. M., was delivered without difficulty of seven-pound girl L. O. A. position. First stage normal, about six hours in duration. Second stage complicated by the cord being around the child's neck and also passing around one arm close up in the axilla, which resulted in a stillborn baby. Could hear no heart sounds and of course no respiratory effort. This stage one hour. The tension on the cord had perhaps interfered with the fetal circulation, for a day or two before labor set in, as the mother had felt no movement of the child in thirty-six hours. Third stage, twenty minutes; normal.

Placenta and membranes came away entire, no laceration of the perineum. Uterus firmly contracted and remained so.

Convalescence progressed nicely till the third day (20th) when she had a long crying spell over the loss of the child, and at this time there was a

\* Read before the St. Louis Obstetrical and Gynecological Society, March 9, 1905.



every three hours for several days.

December 24, 1903, blood examinations by Dr. Gradwohl were negative as to typhoid and malaria, there was some leucocytosis, but the exact figures I have not at hand.

A few days later there was another blood examination, which was also negative, and leucocytosis diminished. With a family history of tuberculosis, we made careful examination of lungs, abdomen and all superficial glands with negative result.

The two points of uncertainty and dissatisfaction in the case were due to an incomplete bacteriological examination, that is, there was no bronchial secretion to examine for the Pfeiffer bacillus and the lochial discharge was not examined.

There have been many cases of influenza during pregnancy. Such a case I attended during the past week. A young woman, perhaps twenty-eight years old, a primipara, in the sixth month of gestation, complained of general aching, coryza, fever, 99° to 101.3 F. Some cough from the trachea, the lungs being normal. The attack continued four days and subsided without any interference with pregnancy.

Heintze, in *Centralblatt fuer Gynaecologie*, 1896, page 1311, emphasizes the fact that parturition is easy and rapid in influenza, and that in the puerperium subinvolution is marked. The best series of cases is reported by G. Moeller, "Bericht ueber die Influenzaepidemie im Februar, 1900, in der Geburtshilflichen Klinik in Griefswald," *Deutsche Medicinische Wochenschrift*, 1900, p. 467. With your indulgence I will give a brief

synopsis of the article. He reports eleven healthy pregnant women were suddenly taken sick, most of them with chills, headache, fever and nausea. Temperature ranged from 100.4° to 103.2° Bacteriological examination revealed numerous small bacilli in sputum; cultures made with blood agar revealed the same bacilli; diagnosis influenza bacilli. Influenza was epidemic in the city of Griefswald during the period covered by this report. In the following eight days, ten more pregnant women were taken down. Most of these complained of headache, multiparæ; claimed to have labor pains; such were noted on palpation. Throughout the epidemic the fetal movements were felt more strongly. The total cases were then twenty-one; two of these were delivered during the prodromal stage.

First case had temperature of 102.2° and chill on second day, after birth. Second day similar symptoms. On the third day both complained of vertigo, aching, etc., during confinement. In nine other cases labor occurred after the onset of the acute symptoms, the fever ranging from 100.2° to 104.9°.

Of the first eleven cases, pregnancy terminated at the tenth month in only five, one aborted in the fifth month, five were prematurely delivered at the beginning of the ninth month. The intensity of the labor pains was augmented notably.

The labors were mostly rapid; after the expulsion of the fetus hemorrhage occurred in five cases, on account of weak uterine contraction.

The puerperium was disturbed in nine of the first eleven cases; the fever was not high and lasted from

one to eight days. Subinvolution occurred four times. One of the children had a vulvo-vaginitis; her mother had no discharge.

Uterine hemorrhages lasting several days complicated some of the recovery.

Involution of the uterus was retarded. Infectious processes in the uterus did not occur.

He quotes Amann, who also observed post partum hemorrhages and

offensive lochia, and refers to Engel, who observed subinvolution.\*

From the painstaking observations of Moeller and careful recording of symptoms and complications and from the record of my own case, we may justly conclude that influenza occurs during the puerperium, and that subinvolution, rapid delivery, and post partum hemorrhages are most apt to occur as complications.

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## BRACHIAL PARALYSIS FOLLOWING SURGICAL ANESTHESIA: REPORT OF TWO CASES.

BY H. S. CROSSEN, M. D.,

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Paralysis of one or both arms in a patient just subjected to operation is one of the unpleasant surprises of surgical work. It is a subject in which any operator may suddenly acquire a personal and absorbing interest. On account of the importance of the subject I feel some explanation is due the members of the society for the incomplete way in which I present it. I had no intention of presenting this subject until I had had time to investigate it to some extent, both for my own satisfaction and to make its presentation more interesting, but the worthy chairman of our executive committee insisted on having it to-night. So, asking your indulgence, I shall present the scattered notes I have of these two cases and make a few general remarks, which may serve as a basis for discussion.

The consideration of the interest-

ing points in neurology I must leave to my neurological friends. I approach the subject from the surgical standpoint—from the standpoint of the operator who conducts his patient safely through a serious operation, leaves her in good condition with everything favorable to prompt recovery, and returns later to find her still in good general condition, but with one or both arms *completely paralyzed*.

*Case 1.*—Mrs. B., age fifty, was sent to me for operation for a large uterine tumor, a fibromyoma. It was while the Congress of Arts and Science was being held in connection with the World's Fair, and Dr. Howard A. Kelly was here as chairman of the section on gynecology. One of our medical societies wished him to hold an operative clinic, and appealed to me for patients. I placed this patient and another one at Dr. Kelly's disposal.

\*I am indebted to Dr. Georg Gellhorn for translations from the German.

The operation was on September 28th, in the clinical amphitheater of Mullanphy Hospital, before quite an audience of physicians. Perhaps some of you were present and can recall the case. Dr. Kelly operated with his usual skill and expedition, and the patient convalesced without

came apparent that she could not use the arm. It lay absolutely helpless at her side. I then made inquiry as to the position of the arms during anesthesia, and understood from the nurse that the arms were at the sides of the chest, with the forearms flexed and pinned by the sleeves. I was

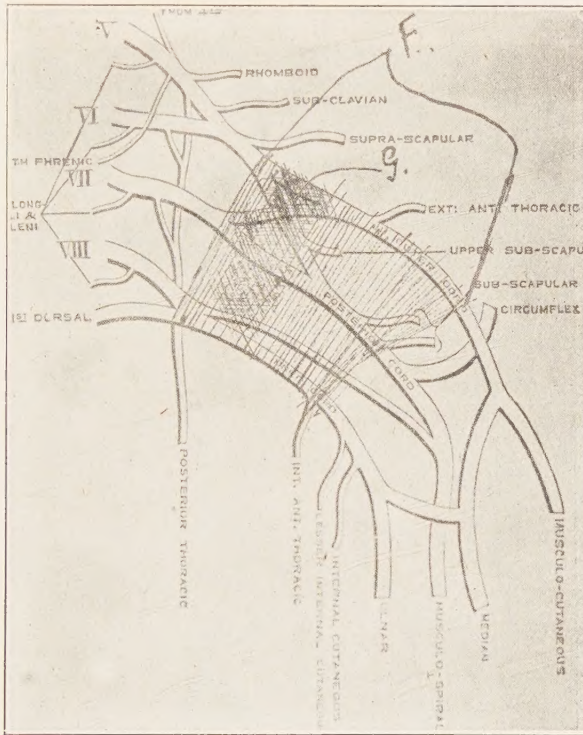


FIG. 1.—Diagram of left brachial plexus from Gray's anatomy. F, Probable field within which a lesion producing these symptoms would occur. G, Location of compression groove in this cadaver.

incident as far as the operative work was concerned.

But paralysis of the left arm was present when the patient recovered from the anesthesia. As soon as the patient became conscious after anesthesia, she complained of pain in the arm. This pain was persistent and troublesome, and as the patient regained complete consciousness it be-

satisfied with this, and made no further inquiry in this direction until after the second case, when I took up the subject with the anesthetist and found I had misunderstood the nurse as to where the arms were pinned. The exact position of the arms during anesthesia is described by the anesthetist in his report, which is given later. The pain in the arm gradually

disappeared after several days, but the paralysis continued.

I requested Dr. M. A. Bliss to examine the arm, to determine the exact form of paralysis present, and to follow up the neurological aspects of case. He reported as follows, his first examination being made four days after the operation:

be moved only by aid of the accessory muscles of the back and neck.

A day or two later some motion appeared in the fingers and improvement occurred from the periphery. Pain persisted for a week or more, but was not severe. The anesthesia diminished as the motor power increased.



FIG. 2.—Position of arms.

"On first examination the arm was entirely limp and the fingers and forearm, and to a less extent the upper arm, were anesthetic. The arm and hand were moved entirely by means of the other hand. There was considerable pain. The extent of the paralysis indicated involvement of the entire plexus, as the shoulder could

The progress was relatively rapid during the first month, the forearm and hand making quite a measure of recovery. Improvement at the shoulder and in the upper arm came about more slowly and progressed tardily."

Figure 1 is a diagram of the plexus reproduced from Gray's Anatomy. On this is indicated, by the lightly

shaded area (F) the probable field within which a lesion producing such symptoms would be found.

The last examination by Dr. Bliss, made two days ago (February 23), shows the condition at present, five months after the onset of the paralysis:

"The patient has good use of the forearm and hand, and can extend the upper arm to somewhat less than a right angle to the body from below

tumor was probably a pediculated fibroid—a very natural supposition, as the most prominent part of the mass was in the lower abdomen, below the level of the umbilicus.

On examination, however, I found that this prominence was simply part of a large deep-seated mass which extended upward into the kidney region and occupied nearly all the left side of the abdomen. Further investigation showed that the growth was



FIG. 3.—Position of arms.

upward. The muscles that raise the arm above a right angle are still affected to some extent. Tactile, temperature and pain senses are everywhere acute."

*Case 2.*—Mrs. M., age twenty-one, was referred to me December 31, 1904, for operation for a large tumor occupying the left side of the pelvis and abdomen. The family physician, on cursory inspection, thought the

a kidney tumor. The colon resonance was not distinct at first, the colon apparently being flattened out between the tumor and the abdominal wall, but when I inflated the bowel in the office examination the colon resonance was easily obtained.

I did a nephrectomy by the transperitoneal route—choosing that method because of the large size of the growth, which extended to the

pelvis. The patient stood the operative work well and made a prompt recovery from the operation.

But there was a temporary paralysis of one arm. Immediately after the operation, as the patient was regaining consciousness, she complained of pain in the left arm, and it was noticed that she did not move the arm. When she was fully conscious there was still no movement in the arm; it was completely paralyzed.

co-ordinate movement can be executed in all directions. Grasp much reduced. Finger movements inco-ordinate. Astereognosis quite marked—unable to recognize with any readiness a knife, pen or medicine glass, placed in the hand. The two points of the esthesiometer at 10 m. m. felt as one. Heat and cold recognized as such only when pronounced, on hand, forearm and upper arm. The pectoral muscles are competent but the deltoid



FIG. 4.—Arm by side.

In a day or two, however, movement appeared in the fingers and gradually extended to other parts. The paralysis in this case was not nearly so severe as in the other case.

At my request Dr. Bliss examined the arm at different times, and his findings were as follows, his first examination being made January 12 (five days after operation).

"January 12. Left arm very weak in extensors of wrist, but a certain in-

is almost entirely disabled. Is unable to hold arm vertical while lying in bed.

Pain sense is reduced but nowhere entirely gone. Can recognize sharp points as such over the entire arm, but they feel less sharp than on the sound arm.

There is no general tenderness on pressure. The arm can be grasped firmly at all levels without discomfort to the patient.

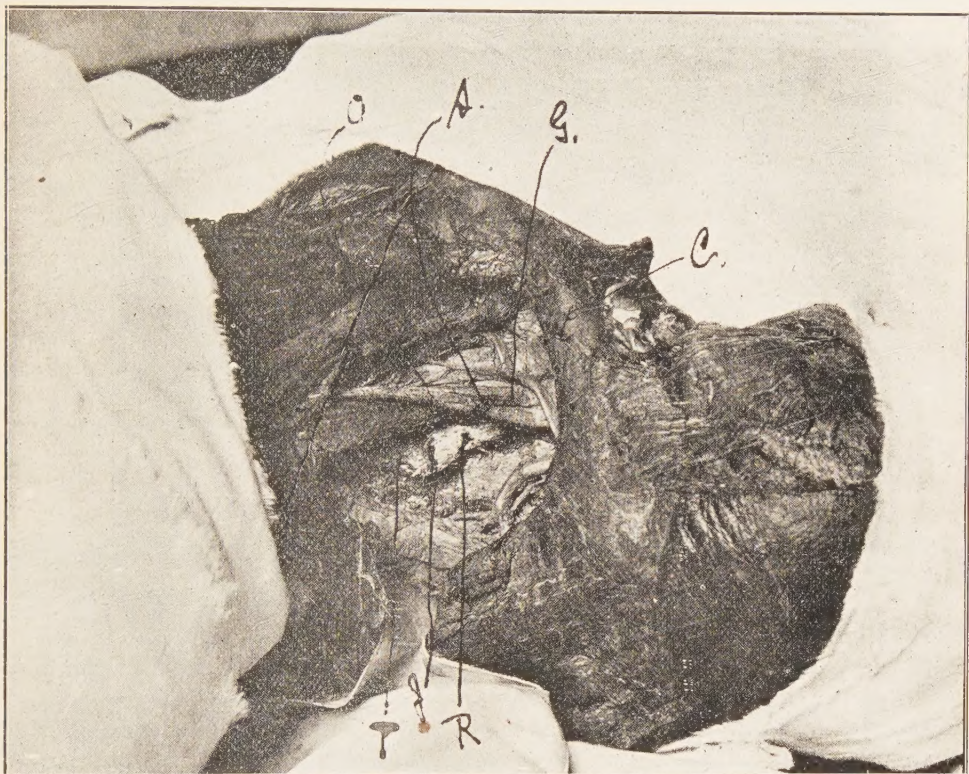


FIG. 5.—Arm by side. C, Clavicle. R, First rib. T, Transverse process of first dorsal vertebra. O, Outer trunk of plexus. S, Stump of suprascapular nerve. G, Compression groove.

The location of the lesion was evidently the same as in the first case, and was situated somewhere within the shaded field in Fig. 1.

January 19. Power to move all muscles of the shoulder group has returned but is weak. Arm can be held upright if it is leaning against something. Anode closing contraction stronger than cathode, *i. e.*, slight reaction of degeneration. Some soreness is complained of about the shoulder, especially if arm is raised above the head.

Sensory function has improved but patient is still unable to recognize readily objects placed in the hand.

There is less subjective numbness. The muscles are generally flaccid.

January 23. Patient is able to recognize two points of the esthesiometer at about normal distance (3 or 4 m.m.) on little and ring finger and on the ulnar side of the middle finger. The points felt as one on radial side of middle finger and on fore finger and thumb. Stereognostic sense much improved. In recognizing objects placed in the hand the patient relies principally on tactile sense of the ulnar portion of the hand.

There is distinct improvement in strength of all the muscles moving the upper arm, as well as those mov-



FIG. 6.—Arm above head.

ing the lower arm. Movements are more co-ordinate. The nails, especially of the thumb, fore-finger and middle finger, show some of the appearances of a neuritis—a clinging of the nail to the dead-looking epithelium under its free edge, ridging of the nails, etc.”

The last examination (February 22) shows the condition at present, seven weeks after the onset of the paralysis.

“February 22. Motor power in the hand, forearm, and to a less extent in the upper arm has been restored. Sensation is almost normal over the entire area originally affected. The patient can raise the upper arm to about the level of the shoulder, but not above it.”

Both of these patients were in fair general condition. They had lost some in weight in the last few months preceding operation and were somewhat anemic. But they had no septic

process, no drug habit, and no intoxication that would predispose them to neuritis.

The particulars of the anesthesia in each case are contained in the statement of the anesthetist, who reported to me as follows:

“Mrs. B. Hysterectomy for fibroids. Anesthetic, ether (Squibb’s); amount used, five ounces; duration of anesthesia, forty minutes. Took the anesthetic quietly and well, requiring no stimulants. Pulse varied between 80 and 100 and was good at both wrists.

Patient was in the Trendelenburg posture for thirty minutes, the shoulders being against the steel shoulder-braces of the table.

During anesthesia both arms were flexed at elbows to a position of comfort and raised so as to bring both wrists about two inches above the head and about twelve inches apart—a position entirely comfortable and

one I have used in nearly two hundred cases of anesthesia without paralysis developing.

There was no pressure of the arms against the table, as the arms rested on pillows. Noticed no unusual stretching or strained position while patient was being moved."

"Mrs. M. Transperitoneal nephrectomy for tumor of the kidney. Anesthetic, ether, given with Allis inhaler; Squibb's ether used; amount, used, six ounces; entire duration of anesthesia, eighty-five minutes; took anesthetic well. The only stimulant given was strychnia, 1-30 grain, given

hypodermically over right shoulder. Pulse regular in force and rhythm, varying between 86 and 98.

Trendelenburg position not used. Arms in position described in other case. No pressure of any kind on arms.

When patient was being rolled onto the right side to permit of counter-opening for drainage being made in the left lumbar region, the left arm was pulled upon somewhat, though not strongly. The pull was not in an upward direction but across the chest. Noticed nothing else of particular interest. No unusual temperature of

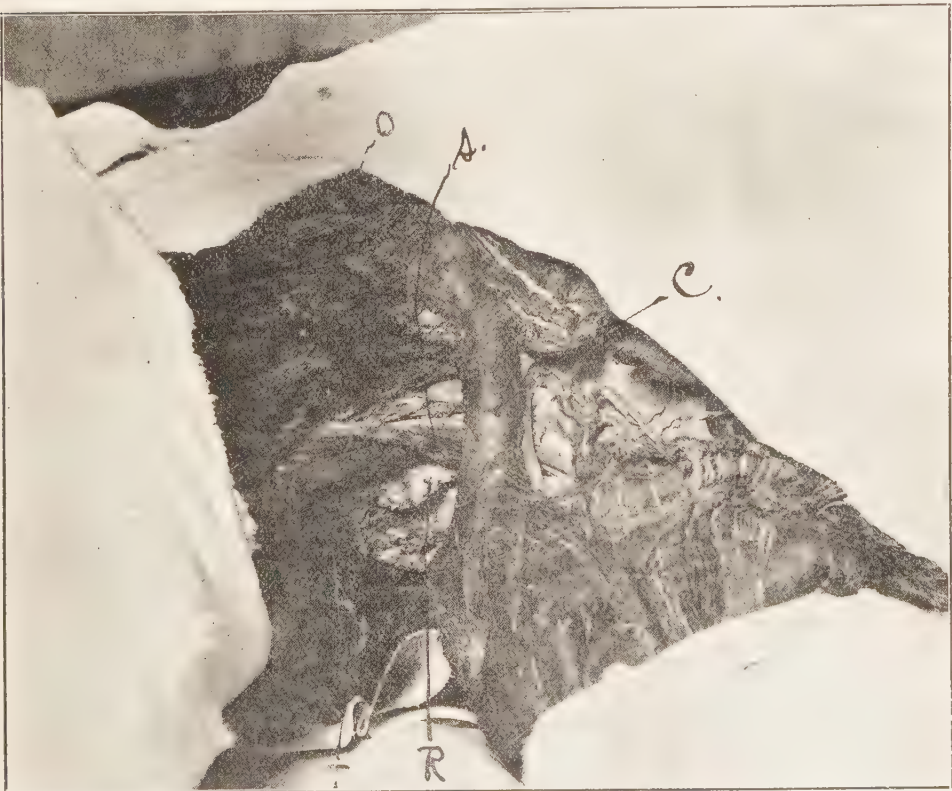


FIG. 7.—Arm above head. C, Clavicle. R, Rib. T, Transverse process. O, Outer trunk of plexus. S, Stump of suprascapular nerve.

the operating room, no draught of air on the patient, nor any cold, wet towels placed near the nerves affected."

To determine whether or not the shoulder supports used in the first case, while the patient was in the Trendelenburg posture, could make injurious pressure on the brachial plexus, I experimented with a person on the table. The shoulder supports were placed in various positions, but in no position did they make pressure in the region of the brachial plexus. They were so long and so much curved that they extended beyond the clavicle and impinged upon that bone. In every position of the arms, the clavicle protected the adjacent soft tissues from pressure. As to what regions at the root of the neck are pressed upon by shoulder supports in other tables, I do not know, but that is certainly a point to be watched.

In order to get clearly before you just the position of the arms in the two cases under consideration, I arranged with the anesthetist to get a photograph of a person with the arms in exactly the positions which they occupied during anesthesia. Figures 2 and 3 are two views of the arms so arranged.

This position of the arms is a very common one during anesthesia. It is also a very dangerous one, because of the possibility of paralysis following.

In order to satisfy myself as to the identity of the bony structures between which compression of the soft tissues (including the brachial plexus) takes place with the arms in this position, I experimented some with a cadaver. It at once became evident

that in the particular cadaver I was working with (and it was apparently a normal one), the compression undoubtedly took place between the clavicle and the posterior part of the first rib. The majority of investigators have held that the compression takes place in just this way in most cases, and the point is shown so clearly in the cadaver that I have brought it before the Society that each member present may see for himself the marked compression of the plexus between the clavicle and the first rib, when the arm is raised. It is through the kindness of Dr. Terry, Professor of Anatomy in Washington University, that I am permitted to make use of this cadaver. For the dissection, I am indebted to Mr. H. H. Kirby, of the third-year class.

Those members seated near can see the large space between the clavicle and the root of the neck, when the arm is beside the chest. (Fig. 4 shows the general position of the arm and other parts. Fig. 5 is a closer view of the same, showing somewhat in detail the parts under consideration.)

Now, when the arm is raised beside the head, as it was in the two cases reported tonight, this space is obliterated, and there is decided compression of the tissues at the root of the neck (Figs. 6 and 7). This compression takes place between the clavicle (C, Fig. 7) and the posterior part of the first rib (R, Fig. 7). The dissection has been carried far enough to expose the margin of the first rib and also the transverse process of the first dorsal vertebra, to which the tuberosity of the first rib is attached. (Fig. 7, R is the rib, T is the trans-

verse process of the vertebra, and the line J marks the junction of the transverse process with the tuberosity of the rib.)

It is impossible, by any manipulation of the arm, to cause the clavicle to go high enough to compress tissues against the transverse processes of the vertebræ.

The interval left between the clavicle and the rib when the arm is raised is very small, so small that the tissues normally lying there are compressed. That the amount of compression is very considerable is shown by the fact that a transverse compression groove remains across the plexus, where the clavicle impinges upon it. (G, Fig. 5, a broad, shallow groove, extending across the outer nerve cords. It can be distinctly seen in the photograph, though no special effort was made to bring it out.)

The same fact may be easily ascertained by allowing a finger to be caught between the clavicle and the rib. (Some members tried this, and were quickly convinced.)

The portion of the plexus which is compressed by the clavicle in this particular cadaver is that part just distal to the origin of the suprascapular nerve. (Fig. 7, S is the short stump of the suprascapular nerve, the remaining part having been cut away. Just below this is seen the compression groove made by the clavicle when the arm is raised above the head. In Figs. 8 and 9 the suprascapular nerve is shown intact (S), and also, just below it, the compression grove (G). This photograph was made at an earlier stage of the dissection, before the suprascapular nerve was divided

and before the rib and transverse process were exposed.) The area of compression is, as you see (Figs. 7, 8, 9), just about where the trunks divide to form the cords. It is best marked at the point of division of the outer trunk (Fig. 8 and Fig. 1).

This compression area falls well within that portion of the plexus the injury of which would be likely to give rise to just the symptoms presented by the two cases under consideration. (This is seen by superimposing the compression groove made by the clavicle, upon the shaded area in Fig. 1.)

Another point of interest in connection with this area compressed by the clavicle is that the greatest compression takes place at the outer part of the plexus (G, Figs. 5 and 8).

Through the kindness of Dr. Willard Bartlett I am permitted to give the particulars of a similar case of brachial paralysis which occurred in his practice.

Mr. S., age twenty-one, was operated on by Dr. Bartlett March 8, 1901, for recurrent appendicitis. Chloroform was the anesthetic used, and the duration of anesthesia was about an hour and a half.

The arms were above the head during anesthesia.

Both arms were affected by the paralysis. On the right side it was comparatively slight, and cleared up in a month. On the left side it was severe, and persisted for many months. The paralysis was noticed immediately after recovery from the anesthesia.

The neurological examination was made by Dr. S. I. Schwab, who saw the patient five days after operation.

The condition of the left arm at that time was as follows:

"The rotator muscles not affected. Clavicular portion of trapezius completely paralyzed. Adductors and abductors partially paralyzed. All muscles which act on the forearm and fingers completely paralyzed. The affected muscles are slightly sore to the touch. Sensation in the hand is as if the skin were thickened or a glove were on the hand. Sensation of heat delayed. Hyperesthesia to cold. Sensations of pain are delayed and there is hyperesthesia to same, except over palmar surface of the first and second phalanges of the forefinger and middle finger. Faradic reaction decreased to both muscle and nerve. No reaction of degeneration. Type, Erb's shoulder and arm paralysis."

Progress toward recovery was slow, and it was about a year before recovery was complete.

Quite a number of these cases of brachial paralysis have been reported in this country and in Europe. As far as I have been able to determine from a cursory reading of some of the literature at hand the subject was first brought prominently before the profession by Budinger<sup>1</sup>, who, in 1894, reported nine cases from Billroth's clinic in Vienna. A few cases had been reported before and a number were reported afterward.

The attention of the profession in America was called to the subject by Garrigues<sup>2</sup>, who, in 1897, reported

three cases of brachial paralysis following anesthesia. Other cases have been published from time to time. In 1903 Cotton and Allen<sup>3</sup>, of Boston, published four cases, in each of which both arms were paralyzed, and collected from literature thirty cases in which one or both arms were paralyzed.

On account of the limited time at my disposal I have not been able to look up the literature as I wished, but as far as I have gone the cases seem to be very much alike, all presenting a total, or nearly total, plexus paralysis—the most marked involvement, however, and the most persistent involvement being in that portion of the plexus supplying the shoulder muscles.

The type of paralysis is, I believe, designated by neurologists as "Erb's paralysis." Its rather frequent occurrence following surgical anesthesia for any kind of an operation makes it of particular interest to every one who is called upon to give an anesthetic, and to every operator, for the operator necessarily feels responsible in a measure for all that takes place during anesthesia, though he be not concerned directly with the anesthetic.

The question as to just how this paralysis is brought about during anesthesia is one of much interest and importance. Considerable experimental work has been carried out by various surgeons, anatomists and neurologists with a view to determining this point, and with very satisfactory results. The cause or causes, and the various other points mentioned below, seem fairly established

1. Archiv fuer klinische Chirurgie, 1894, No. 47, p. 121.

2. Am. Journal of Medical Sciences, 1897, Vol. 113, p. 81.

3. Boston Medical and Surgical J., 1903, Vol. 148, p. 499.

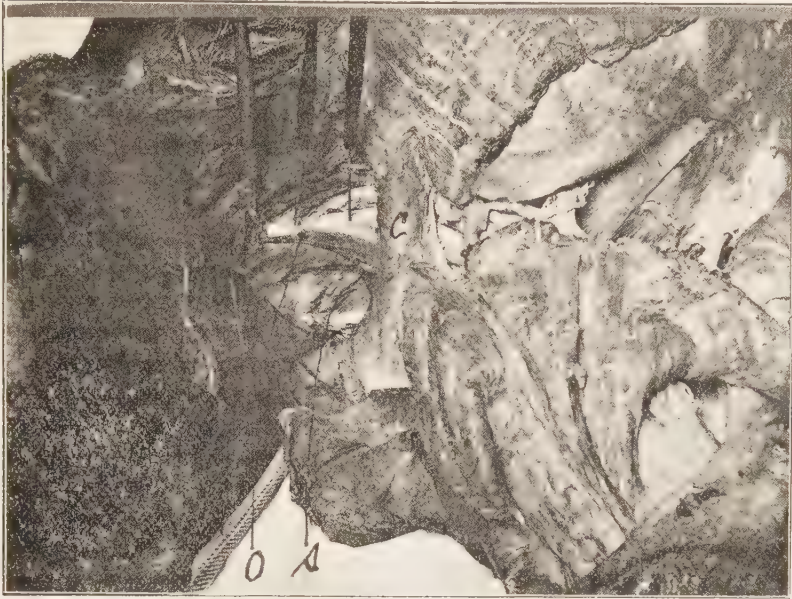


FIG. 8.—Arm by side. C, Clavicle. O, Outer trunk of plexus. S, Suprascapular nerve. G, Compression Groove.

—most of them having been established by Budinger in his early investigation of the subject.

1. *Frequency.*—In spite of the scarcity of published cases, the accident is evidently of rather frequent occurrence. Nearly every writer on the subject mentions that he has heard of a number of cases in his locality. My experience has been similar.

I think this danger from anesthesia, and the way to prevent the trouble, should be distinctly mentioned in every text-book that deals with the subject of surgical anesthesia. Such mention and warning would prevent much suffering and disability.

2. *Cause.*—I am speaking of course of brachial paralysis—not of other forms of paralysis that may be found after anesthesia, such, for example, as simple musculo-spiral or ulnar

paralysis, due to the arm hanging over the edge of the table, or central paralysis, due to hemorrhage or other lesion in the central nervous system. It is established that the usual cause of these brachial paralyses following anesthesia, is found, not in any previously existing toxæmia nor in the toxic effect of the anæsthetic nor in the lowered vital resistance (though all these may predispose to it), but in the position of the arms during anesthesia. Concerning the etiology I will quote from the article of Cotton and Allen, who seem to have considered the subject with much care.

“There is no question, from the data, that the position of the arms is the cause of the trouble. There is no case recorded in which the trouble occurred when the arms lay on the chest or at the sides of the body; in all cases where there is a record of the

position, they were either above the head or at least well abducted. That long-continued stretching upward of the arms may affect the plexus is shown by the rare occurrence of a fleeting numbness, or paresis, when the arms are so placed in sleep, and, still better, by the cases reported where passive hanging from gymnastic apparatus sometimes produces a partial paralysis of the Erb type (but including the serratus magnus and sometimes the levator anguli scapulae and rhomboid), sometimes of rather obstinate character.

It is easy to see how positions which under ordinary circumstances may give no trouble may readily become exaggerated from the muscular relaxation of anesthesia. With such relaxation and a continuance of the vicious position for one or more hours, it is easy to conceive that harmful pressure or tension may result. Just how this happens is not fully determined. There are three possible mechanisms to be considered:

1. Pressure on the plexus: (*a*) exerted between the clavicle and the transverse processes of the vertebrae, especially the fifth and sixth; (*b*) between the clavicle and the first rib.

2. Tension on the roots or plexus from the position of the arm.

3. Tension from the position of the head and neck, the arm being abducted.

The relation of position to the involvement of single roots clinically proves to be of no use in helping to determine the manner of damage. Where we find it noted that the arms were, during narcosis, stretched above the head, we find paralysis of all, or practically all, the brachial plexus,

in five cases; of upper roots alone, in three cases; of circumflex (deltoid alone), in one case; of lower roots and part of upper roots, in one case. When the arms were abducted and not stretched upward, we find paralysis of the whole plexus, one case; of lower roots especially, one case; of upper roots, partly of lower, one case. These results are too inconsistent to be conclusive as to detailed lesions.

It would seem that it would be easy to determine these effects by experiment on the cadaver. In fact, it is not so easy. As each investigator has in turn advanced his theory he has always "proved" it by cadaver experiment.

The writers (Cotton and Allen), in their turn carried out patient observations on a number of partly dissected cadavers, trying to verify the alleged effects of position, especially with regard to special nerve roots pressed on in special positions. To our surprise we found it very hard to produce any considerable tension or pressure on the brachial plexus by any position akin to those occurring clinically.

The following results, such as they are, were constant in different cadavers:

With the upper arm abducted to a right angle and supinated and the elbow dropped back, the median, the musculo-spiral and especially the ulnar nerve are under some tension, and there is some stretching of the plexus, as a whole, over the first rib and over the head of the humerus.

With the arm above the head, no nerve save the circumflex could be put on the stretch. As for the pressure exerted by the clavicle on the

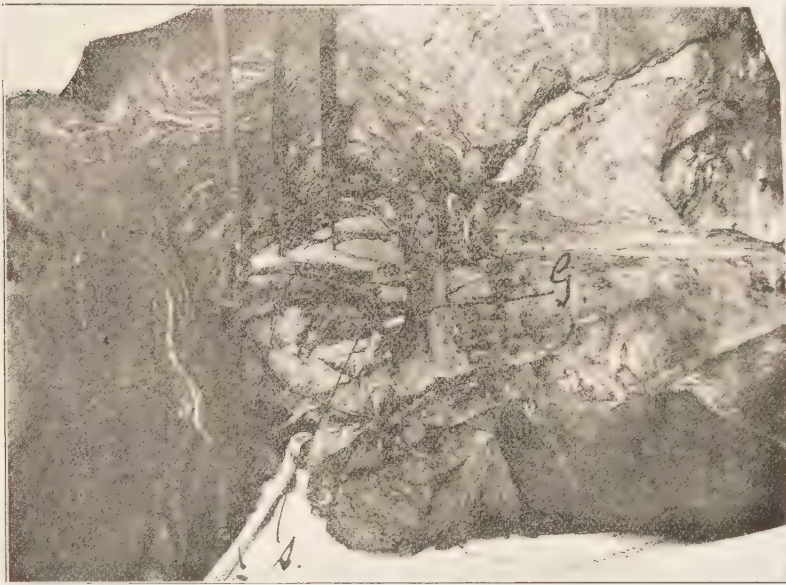


FIG. 9.—Arm raised above head. C, Clavicle. O, Outer trunk of plexus. S, Suprascapular nerve.

plexus either against the rib or against the transverse processes of the vertebræ, it could not definitely be demonstrated in any position that could be compared to those occurring in narcosis. As Guillaum and Duval pointed out, the plexus, when the arm is extended upward, moves into the hollow of the clavicle and is protected. Such pressure as is exerted is between the clavicle and the masses of muscle in the neck over the transverse processes. The plexus is slack and there is not even a chance of stretching it."

Further along in the paper, the following is given as one of the conclusions:

"The cause of this paralysis is not toxic, but mechanical. It occurs only when the arms are long held above the head or lie in abduction—never if they lie flexed on the chest.

The mechanism is pressure on the nerve roots, probably between the

clavicle and the muscles over the transverse processes of the cervical vertebræ or from stretching over the head of the humerus in abduction."

So it is clear that the paralysis is ordinarily due to the arms being above the head or in abduction during anesthesia. As to just exactly how the pressure or stretching takes place, that is a matter of secondary importance and one upon which there is some difference of opinion. I gave the above rather lengthy quotation to show this difference of opinion as regards the exact manner of pressure. Probably the exact mechanism varies somewhat in different cases.

The pressure in most cases, however, is evidently due to compression of the plexus between the clavicle and the structures overlying *either* the first rib or the transverse processes of the lower cervical vertebræ. The majority of investigators, among whom I may

mention Budinger, Wigand, Kron, Gaupp and Garrigues, hold that the bone against which the soft structures are ordinarily compressed is the first rib.

Also, you will notice, that such is the case in the cadaver we have here tonight. Of course it does not necessarily follow that it is so in all cadavers. You can see, furthermore, that this compression takes place whether the arm is placed above the head or simply abducted.

Other possible sources of danger in this connection, mentioned by various writers, are:

Application of tight straps around the shoulders, as in certain forms of apparatus for holding up the lower extremities with the patient in the lithotomy posture.

Extending the head far to one side, thus stretching the nerve trunks, making them more susceptible to pressure or compressing the nerve roots as they leave the spinal canal.

Marked abduction of the arm for a long time, as in certain operations about the axilla.

Pressure by the arms of the anesthetist upon the brachial plexus at the root of the neck.

3. *Prophylaxis*.—This is simple and certain. Keep the arms beside the chest. If, on account of some particular operation, it is necessary to put the arms above the head or in strong abduction, change from this dangerous position as soon as possible.

Other points of interest are the *prognosis*, the *pathological changes* in the affected nerves and the *treatment*. The consideration of these points I must leave to my friends, the neurologists.

I may say, however, as regards *prognosis*, that all the cases of which I read seemed to follow about the same course as the cases reported tonight, *i. e.*, rapid improvement for the first few weeks and very slow improvement later, with some trouble persisting for many months. I found mention of only one case in which there resulted permanent disability. That was a case of Mally's, in which there remained permanently partial paralysis of both deltoids. In that case there was a chronic arthritis of each shoulder joint and it is a question how much of the persisting trouble was due to the arthritis.

As to *pathological changes*, in the two cases of Budinger's that came to post-mortem, ordinary examination in one failed to show any distinct change, and in the other microscopical examination of the affected plexus gave the same result.

In regard to *treatment*, the treatment in the two cases reported tonight was about the same as that recommended by most writers, namely, relief of pain, by hot applications and arranging the arm in comfortable positions for the first few days, and later electricity, friction or light massage, and voluntary movements, accompanied, of course, with a tonic regime.

In regard to *medico-legal* complications, I have so far found no case in which such a complication occurred. In this connection I would call attention to the fact that there is some unknown factor in these cases—some predisposing or exciting cause which has not yet been brought clearly to view. Of the thousands of cases of anesthesia with the arms above the head or

lying in abduction, comparatively few have had paralysis. Just why these few patients should develop

paralysis while the vast majority who go through the same process do not, is a matter still undetermined.

## A NEW TEST FOR DETECTING MINUTE QUANTITIES OF ALBUMIN IN URINE—DEMONSTRATION, WITH TWO SPECIMENS.

BY AMAND N. RAVOLD, M. D., St. Louis.

For several years I have been experimenting with a number of the more delicate tests used for the detection of small quantities of albumin in urine, but they are associated with so many warnings and have so many fallacies that it is a real pleasure to at last find one which seems to be free from defects. Some time ago Spiegler published a report of his experiments with a test composed of tartaric acid, corrosive sublimate, glycerine and water. Later, Jolles modified and improved this reagent by replacing the tartaric acid with succinic acid, and the glycerine with sodium chloride. The Spiegler-Jolles solution is made up as follows:

|                          |          |
|--------------------------|----------|
| Corrosive sublimate..... | 10 gm.   |
| Succinic acid .....      | 20 gm.   |
| Sodium chloride. ....    | 20 gm.   |
| Water .....              | 500 c.c. |
| Dissolve with heat.      |          |

This is an exquisitely delicate test for albumin, and is said to detect 0.002 of a gram of albumin to the litre. The specific gravity of the solution is 1050. Nitric acid will detect 0.02 of a gram of albumin per litre. It is therefore seen that this test is ten times as delicate as the nitric acid.

Within the last week two interesting specimens of urine have been examined by me, which I wish very much to demonstrate to the society

to-night. The first is from a patient referred to me by Dr. A. S. Barnes, Jr.: a man sixty-six years of age, bedridden, suffering with neuralgic pains and other symptoms that were extremely vague. Upon auscultation I found the first sound of the heart booming and prolonged, with the second clear, sharp and accentuated. This called my attention to the arteries, for I felt the heart was pumping against an obstruction. I found the arteries of the lower extremity markedly sclerotic, and finally a diagnosis of arterio-sclerosis was made. Twenty-four hour urine was collected, which amounted to twenty-six ounces. The specific gravity was 1037. It showed a distinct layer of albumin when floated on the Spiegler-Jolles solution, but no albumin whatever to heat, nitric acid or potassium ferrocyanide tests. Microscopically, the centrifugalized sediment showed a large number of hyaline casts and quite a number of finely granular casts, large and small, and a few renal epithelia. That this is a pathological and not a physiological albumin in the urine is proved by the microscopical evidence and by the history of the patient. Further, this test does not show albumin in the urine of a normal healthy man, although it is claimed by some authorities that fully as high as 30 per cent. of all persons

in health show traces of albumin. So far I have not been able to find albumin in the urine of a healthy man with this test.

I will now demonstrate this specimen of urine. You will see that I have now applied the three tests—heat with a little acetic acid, nitric acid by the layer method, and potassium ferro-cyanide by the drop method, and not the slightest trace of albumin can be found. But when I acidify this urine, filter it, and then float it gently upon the Spiegler-Jolles solution by means of a pipette, or upon this solution as modified by me, as I will explain later, a distinct white ring immediately appears at the point of contact of the two fluids, and this ring does not disappear upon heating.

The second case came to me through the dispute of two physicians over an applicant for life insurance. The first specimen of urine, passed in the presence of a physician, contained a trace of albumin to heat and nitric acid tests. A second specimen, passed in the presence of a second physician the next day, showed no albumin to the ordinary tests. A third specimen, examined by both physicians together, showed no albumin to the standard tests. The first physician was not satisfied with the result, and brought the urine to me. When floated on the Spiegler-Jolles reagent, or my modification of it, a distinct white ring of albumin was precipitated. The centrifugalized sediment, examined microscopically, showed a number of hyaline casts and a few renal epithelia.

These two cases, to my mind, emphasize the importance of a delicate test that is reliable for the detection

of traces of serum albumin in urine, and it is especially so in cases like that of the insurance applicant. I have not had the opportunity of seeing this individual, but the physicians state that he is a robust man, of florid complexion, about forty years old, and has been a free drinker of alcoholic beverages for a number of years. He very probably is suffering from a chronic interstitial nephritis in its primary stage, and it is in just such cases as these that we can do so much for the welfare of the individual, if the disease is detected early.

Recently, Dr. R. M. King and I, while working with a urine of the specific gravity of 1037, found that no matter how careful we were in floating the urine upon the surface of the Spiegler-Jolles, it was almost impossible to keep the two fluids from mixing intimately. It occurred to me that we might improve the solution if we increased its specific gravity. I therefore tried a number of ways of doing this, and finally hit upon the sulphate of magnesium, which increases the specific gravity of the fluid without interfering in any way whatever with its delicacy. The method of preparation is as follows:

|                          |         |
|--------------------------|---------|
| Corrosive sublimate..... | 2 gm.   |
| Succinic acid.....       | 4 gm.   |
| Common salt.....         | 4 gm.   |
| Water.....               | 50 c.c. |
| Heat.                    |         |

This is added to 50 c.c. of a saturated solution of sulphate of magnesium. Its specific gravity is 1150. The solution is easily prepared, is cheap, and very simple of application. This in my laboratory is known as the Jolles-Ravold, to distinguish it from the Spiegler-Jolles. The manner of testing a specimen of urine

with this solution for albumin is as follows:

The urine is first acidified by adding 1 c.c. of acetic acid to 5 c.c. of urine; filter. Then, by the aid of a pipette, the urine is slowly floated down upon the surface of the reagent in an inclined test tube. If a ring of albumin appears, then heat. The albumin will not disappear. Further

examination should be made for globulin, nucleo-albumin or mucin, and the albumoses.

For a rapid orientation, as the Germans would say, in the albuminous field in urine examination, I know of no test which is so delicate, so easy of application, so simple to prepare, and so free of fallacies, as these two solutions.

## PRESENTATION OF SPECIMEN OF SARCOMA AND PATIENT.\*

BY DR. JOHN C. MORFIT.

We have not yet proven that tumors are the result of local conditions, but it is quite generally believed that benign growths have no constitutional relations. This belief is less firmly fixed when we come to consider malignant tumors, and while they are probably local and possibly of unknown bacterial or parasitic origin, there is also some evidence that they are a manifestation of a constitutional disease. If the malignant tumors have a constitutional causative relation, it is best typified in the sarcoma group, the most malignant of all classes. Without going over in detail a time-consuming rehearsal of numerous statistics, I prefer to express a few general, practical observations obtained from a review of the literature and my own experience.

The surgery of sarcoma deals with the local manifestations of the growths, neither admitting nor denying a constitutional relation. The benefits of surgical treatment cannot be claimed to go much farther than a very uncertain prolongation of life

in the great majority of cases. I can find mention of only one case living and well fifteen years after operation. There are numerous cases reported as well and healthy after from one to five years. But the majority of all cases operated upon die of a return usually within the first year and generally within three to six months. Some cases reported as having safely survived the three-year limit have died of a return of the growth either locally or remotely as late as five years after the primary operation. The frequently observed favorable influence of an intercurrent attack of erysipelas on the sarcomata is further emphasized by the fact that most of the cases reported as having recovered after operation were cases in which healing had taken place by secondary process, that is, in which repair and apparent cure followed infection.

In addition to surgical measures of treatment, there are two others which have their advocates and an equally long list of improvements and recoveries with quite as great a list of ultimate returns and deaths. As a recommendation of surgical measures it

\* Read before the St. Louis Med., February 18, 1905.

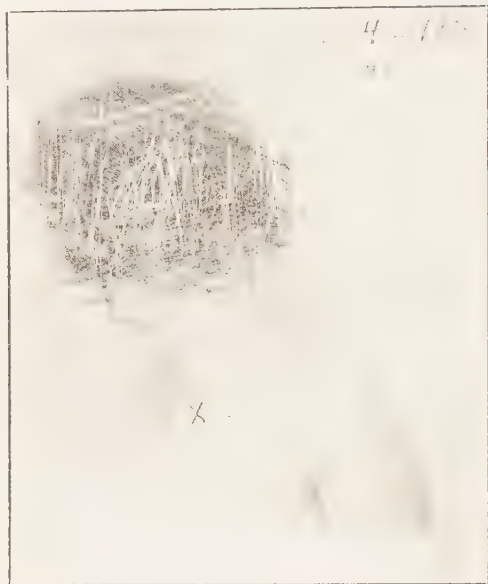


FIG. 1.—Lateral view of tumor marked X.

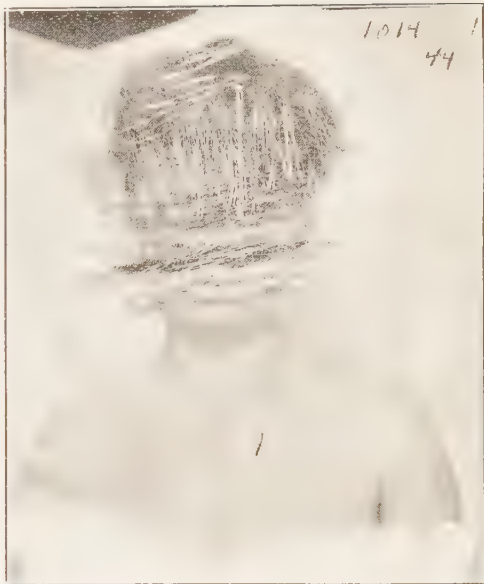


FIG. 2.—Front view of tumor marked X.

may be observed that these two methods, the x-rays and Coley's fluid, are advised only as auxiliary to operative treatment or for use in inoperable cases. The gravity of the cases treated surgically is much less than the gravity of the cases treated by non-surgical means. It would seem unfair to compare the results of the operable cases with the results in the inoperable cases, and this would be more strongly suggested were the surgical results markedly better than the non-surgical results. But as a matter of fact, the results from x-ray treatment and from the use of Coley's erysipelas and prodigious cultures as reported, read quite as encouragingly as surgical statistics. At the same time we cannot deny that some cases have apparently recovered without any treatment—cases as carefully studied and reported as those treated by any other means.

If inflammation and infection does have an inhibitory influence on sarcoma, then the advent of modern aseptic surgery can offer little more hope than the surgery of a half century ago, and that hope would be due to the earlier recognition and more radical treatment to which these growths are now subjected, and not to the comparative cleanliness. Deliberate infection would increase the primary mortality, and for that reason should not be encouraged.

All methods of treatment, then, are defective and present little hope. I believe serum therapy probably holds the secret. Unaided, surgery can do no more than it has done. For the present a combination of surgical with medical and x-ray treatment must be employed, but surgical measures must receive the earliest and most serious consideration.

The patient and specimen I present

to you tonight is reported as a recovery, but not a cure, and my object in calling your attention to it is to illustrate how far we may go in eradicating the local trouble, how complete the eradication may be, and yet how certain a return is likely to be. The case has been treated by the three measures I have mentioned and will be reported rather in detail to bring out the interesting points.

#### REPORT OF CASE.

The patient is a single white woman, aged twenty-five years, of good habits. Mother died of facial cancer, aged seventy-eight, family history otherwise irrelevant. Previous history, always enjoyed robust health, menstruated first in sixteenth year, menstruation always normal, lasting three or four days, and the interval had always been five or six weeks. Ceased menstruating four months before coming for treatment.

The present trouble began less than four weeks before presenting herself for treatment. At that time she noticed a little swelling to the left of the manubrium. It grew very fast, unaccompanied by pain, fever or general symptoms. There was no redness or tenderness. Ten days after its appearance she painted the growth with iodine, and subsequently used hot applications and massage until she began to have local pain. She then came to my clinic at Mullanphy Hospital. Examination led to the immediate diagnosis of sarcoma. Just before entering the hospital pain was so great that it caused suffering to turn over in bed, and for two weeks previously she had given up all her household duties on account of the

pain in her left arm caused by sweeping and laundry work. She had weighed 168 pounds, but had steadily lost during the last year until the present minimum of 138 was reached. She had not noticed recent rapid loss in weight.

*Physical Examination.*—Height five feet six and a half inches, blond type, hair reaches below waist, has never been cut, eyes clear, pupil reflexes normal, mucous membranes healthy, teeth in good condition, moderate number of fillings, patient is fleshy with solid fat and muscle. Two small moles on face, one over the left nasal bone one-eighth inch in diameter, and one over the left brow one-sixteenth inch in diameter; pigmented mole to the right of the lumbar region one-eighth inch in diameter. No glandular enlargement except comparative enlargement of two glands at about the middle of the posterior border of the sternomastoid on the left side, this is difficult to feel and is not made out except by palpation. Heart and lungs both normal except for slightly accelerated action incident to examination. Mammary development is very great, but not pathological. Abdomen rotund and not protuberant, soft and pliable, and has no tender points. Abdominal viscera normal in size and location. No tenderness over the pelvic organs. Uterus anteverted in a normal degree, ovaries palpable, tubes normal, ovaries sensitive to moderate pressure, vagina and cervix of noticeably dark blue appearance. A mucus cyst is present on the anterior cervical lip. The cervix is lacerated in a moderate degree.

*Special Examination.*—In the boundary between the middle of the sternum

and a line parallel to it and running through the middle of the clavicle laterally, the upper border of the clavicle and the upper border of the margin of the third rib on the left side is a tumor, sessile, immobile, elastic with its summit about an inch higher than the corresponding point on the right or normal side. The skin is not adherent and there are no large veins. This will be illustrated

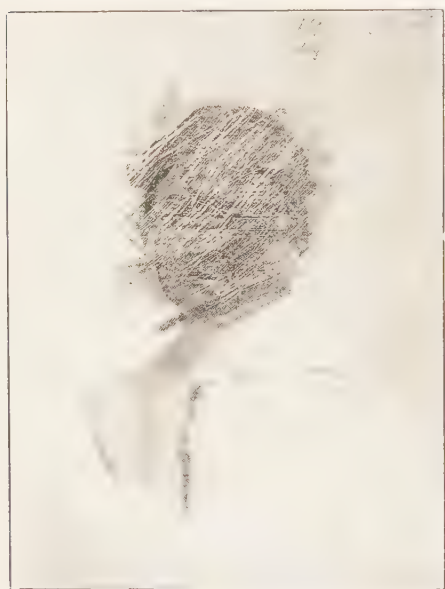


FIG. 3.—Showing result about one month after operation for removal of entire clavicle and much adjacent structure.

in lateral and front view photographs taken before operation, the tumor being marked with an "x."

The age of the patient, rapid and physical symptoms of growth, led to a diagnosis of chondro-sarcoma involving the cartilage of the second rib and contiguous portions of the sternum and first rib, with perhaps a slight involvement of the sternal end

of the clavicle. This meant, then, that a very radical operation must be done if the growth was to be wholly excised. The location over the superior mediastinum and the important structures at the base of the neck and under the clavicle made the operation one of considerable magnitude.

On August 4, 1904, incision was made the whole length of the clavicle and from the interclavicular notch to the lower border of the middle bone of the sternum at its center, these right-angled cuts joined by a small curved one at the ends. From the left sterno-clavicular region a flap was dissected out and backward from the subjacent tumor until the region of the latter was far exceeded. The flap did not include all the fat, as it was desired to not too closely isolate the tumor. The muscles were divided from the middle of the clavicle to the middle of the sternum, extending deep to the costal surfaces. The fascia and muscle attachments were divided at the clavicle and manubrium by separating them with the periosteal elevator. The neck of the manubrium on the right was then separated from the deep or internal thoracic attachments with the same instrument, and a curved costotome put under the one with the point protruding from above around the posterior surface out into the space between the first and second ribs, just next to the sternal border. This made the incision between the median line and the right manubrial articulations with the clavicle and the first rib. The second right costal cartilage was then divided in like manner. Then the costotome was inserted behind, and divided the lower part of

the manubrium. This brought us to the left or tumor side. The tumor divested of all integuments seemed cystic, and was incised, resulting in the escape of necrotic-looking tissue. The interior was washed with bichloride. Before proceeding further the adjacent raw surfaces were covered with bichloride gauze, to prevent infection with tumor material. This was all subsequently removed, as it was necessary to handle the tumor freely. In dividing the costal attachments on the tumor side the pleural cavity was invaded, causing immediate pneumothorax. At this period the operation was stopped and the wound packed with gauze. Then, beginning at the shoulder end of the clavicle, the latter was dissected out of its fibrous bed. After loosening the shoulder attachments, the bone was raised and the adjacent attachments divided close to the bone. This was easily accomplished.

The growth seemed to extend to the posterior surface of the manubrium and the second costal cartilage, and to involve the pleura. The gauze was removed from the pleural opening, which was as large in area as a half dollar. It was impossible to more than reduce its area about one-half with catgut sutures, and to do this the intercostal muscle was brought into service. The left innominate vein was probably punctured with the needle in inserting the catgut sutures. Another ligature was thrown back of this one and stopped a free hemorrhage. The first rib was then cut off close to the scalenus anticus. The left apex could be seen to expand and contract violently. Efforts at closing

the cavity having failed, it was decided to suture the flap. Whenever the opening was closed with gauze, respiration became easier. The patient's pulse was alarming, and the flaps were sewed down with through-and-through catgut sutures. Pressure was maintained by placing gauze in the depression left by the removal of the tumor, and binding it down with a figure-of-eight bandage. The arm was bound down to the side of the chest, and the patient was put to bed in fair shape.

On the evening of the same day there was great dyspnoea with rapid pulse, but the general condition was good. On the next day the dyspnoea was distressing. The wound was dressed, and one of the stitches on the outer clavicle had become loosened, and there was an escape of some dark blood. Raising the patient to a sitting posture caused faintness. Morphine sulphate was given, the patient placed on the right side with pillows to the back, affording relief in twenty minutes. Resonant note in the apex region, and the flap moved in and out with the respiration. General condition excellent.

On the third day slight dyspnoea, relieved by morphine injection.

On the fourth day discharge of clear serum at the shoulder opening. The flap is protruding and there is a dull percussion note, indicating a pleural effusion draining out under the flap. General condition first rate.

On the eighth day all catgut sutures removed, some marginal sloughing at the angle of the wound, gaping of the sternal wound near the lower end, clavicular wound quite well healed.

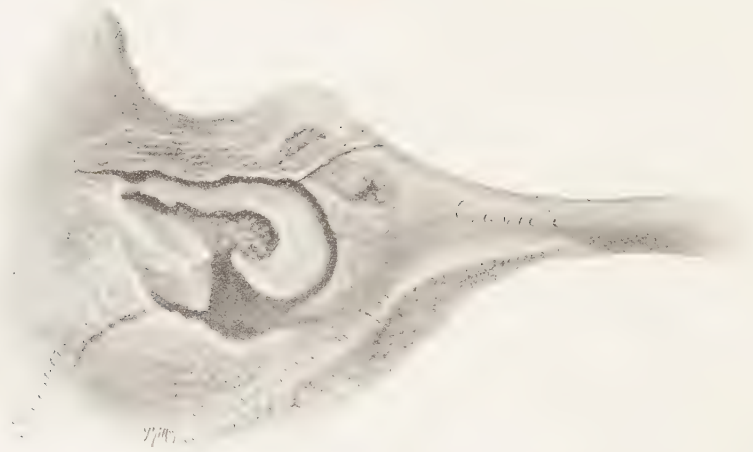


FIG. 4.—Removal of entire clavicle and adjacent sternum with tumor. Location of tumor beneath integument below sterno-clavicular articulation and in the manubrium. Drawn from specimen.



FIG. 5.—Showing locations of secondary nodule removed twenty weeks after first operation.

About an ounce of clear serous fluid was pressed from beneath the flap through the sternal opening. Dressed with bichloride gauze and pressure bandage.

On the ninth day free discharge of serum through small opening. General condition good.

On the tenth day slight discharge of serum, general condition good. Slight pain in triceps for two days, tender to palpation; some headache.

On the eleventh day free discharge of serum during the previous night. At the upper angle of wound free discharge of bloody serum and compara-

tively little from the lower region. The flap was collapsed into the thoracic fenestra, leaving a very perceptible depression on the surface. This was filled with moist gauze and a compress bandage put over all. The whole left arm noticeably enlarged, especially on the inside near the elbow. Circumference two inches larger than the other arm. No pain in the left arm. Roller bandage snugly applied to left arm. The enlargement was probably due to a traumatic phlebitis, as the pressure was not such as to cause edema.

On the twelfth day the left arm decreasing in size, wound looking well.

On the thirteenth day the left arm decreased to half its original enlargement, no pain. Occipital headache intermittent and relieved by acetanilid.

On the nineteenth day the arms equal in size, no swelling or pain.

On the twenty-first day all wound discharges had ceased.

On the twenty-seventh day Coley's erysipelas prodigiosus fluid, 2.5 minims, injected below the right scapula. Patient complained of transient pain in the right hip and lumbar region on previous day.

On the twenty-eighth day there was a rise in temperature and pulse for two hours after previous injection, coldness of extremities, loss of appetite, nervousness, great pain at the point of injection, a very positive reaction from Coley's fluid.

On the twenty-ninth day there was general improvement.

On the thirtieth day there was a second injection of Coley's fluid, 2 minims, with a less pronounced reaction.

On the thirty-second day there was a third injection of 5 minims in the right thigh, followed by coldness of feet and legs, with a rise in pulse and temperature and the usual pain at the point of injection. Patient was allowed to go home.

On the thirty-sixth day Coley's fluid was given, with a capsule of strychnine, quinine and pepper in tonic doses. The pulse was 96, temperature 100.5.

On the forty-eighth day Coley's fluid, 18 minims, was injected. Patient complained of cold feet, there was hysterical crying, and fever about an hour after these large injections; feels badly for several days thereafter.

On the fifty-fifth day eighteen minims of Coley's fluid injected with the usual result. Patient has noticed a small pea-size nodule below the patella, over the tuberosity of the tibia on the right leg, present several days.

On the fifty-seventh day the nodule on the knee no larger. Patient declares she will not take Coley's fluid any more. The arm is swollen and bluish-red below the point of last injection. Temperature and pulse have ranged close to 100 at every visit since operation.

On the 5th of October, or nine weeks after the operation, the patient returned feeling better than ever; has not menstruated; wound excellent; no discharge.

On the 10th of October the patient says she feels better than ever; nodule on the knee slightly larger; neck incision looks first rate. Patient says she lost two pounds; slight menstruation after last visit; appetite good.

On the eleventh week after operation temperature was  $100.7^{\circ}$ , pulse 110; feels better; looks all right; some increase in growth over the right knee. X-ray exposure to thoracic scar and knee nodule, five minutes each.

Twelve weeks after the operation patient menstruated normally for five days; is gaining in weight and strength; taking iodide of potash; temperature  $100.3^{\circ}$ , pulse 112.

The general condition of patient has never given any evidence of any abnormal temperature. Eighteen weeks after the operation the second menstruation began; pulse 80 to 100, temperature  $99^{\circ}$ . The growth on the knee is twice the original size, and patient consents to removal by operation.

On December 22d, twenty weeks after the primary operation, the patient entered the hospital for the second operation. An elliptical incision was made over the right patella tendon down to the bone, an area of two inches in diameter exposed. The surface was washed with bichloride. The piece removed contained a tumor about the size of the rubber tip of a lead pencil. For thorough investigation a piece of the subjacent periosteum was removed. The uterus was scraped thoroughly; was over deep and capacious. The curette showed a firm muscular base in the uterus. The knee wound was sewed subcutaneously with catgut. The wound healed without incident, and the patient's general condition has improved, with lessening pulse rate and temperature. She has had about six x-ray exposures to the knee and chest. At her last visit, on January 31st, the patient complained of great pain

in the calves. Relief from this has been coincident with the taking of large doses of iodide of potash.

The examination of the first tumor showed a large and small round cell sarcoma. A part of the tumor is a simple fibroma, so that it probably began as a fibroma and later became sarcomatous. It probably originated from the periosteum. The tumor from the integument about the knee showed a mixed cell sarcoma. An interesting fact also is that the periosteum removed from the bone beneath the tumor, and with which there was no demonstrable connection, shows a mixed cell sarcoma. In other words, while the removal was apparently radical, sarcoma cells are present in a position where it was clinically not demonstrable. The uterine scrapings showed no evidence of sarcoma.

The blood count in August was 8720 whites per cm., with no distinctive features about the other constituents. The urine was normal in quantity and composition at all times.

Figure 3 shows the patient on leaving the hospital, about a month after operation.

The interesting points about this case are: First, the undoubted diagnosis, as proven by the removal of the secondary nodule, the removal of the clavicle and manubrium enucleating the tumor and adjacent structures en masse; second, the fact that neither shoulder gets the support afforded by the strong clavicle articulation with the manubrium, as both these articulations were sacrificed in order to give the tumor a wide range; third, the lack of deformity as a result of the sacrifice of so much of arm and shoulder

bony support; fourth, probably most interesting of all is the fact that in removing the isolated nodule in the integument, the subjacent periosteum, with which there was no apparent connection whatever, showed the same character of sarcoma cells. If we are to rely on the clinical findings as emphasized by microscopic examination, the sarcomatous tissue is not entirely eradicated, and we may expect a return in the right leg, although at this

writing, nine weeks after, there is no evidence of a return anywhere.

As this goes to press the patient has a normal pulse and temperature, is increasing in weight, has a good appetite, the edema in the right leg has entirely subsided, there is no pain. The patient is taking ten grains of iodide of potash three times a day, with an x-ray exposure once a week alternately to the thoracic and leg scars.

### UNUSUAL VITALITY.\*

By DR. F. W. ABEKEN, St. Louis.

On February 19, A. C., a blacksmith, was found dead beside his anvil, apparently without preceding ill-health. The official obduction to determine the cause of death revealed conditions which afforded an unusual opportunity to appreciate the great resources of nature in overcoming disease without the help of man, perhaps in spite of it, and to observe the degree at which the perturbed functions of many abnormal organs may still find a balance sufficient to preserve life in comparative comfort for years.

Much detail makes tiresome reading. I shall, therefore, confine myself to the essentials of the findings unless more particulars are called for.

In the head a recent creamy exudate under the arachnoid covered in places the surface of the brain; there was much cerebro-spinal fluid.

The chest was nearly as deep as wide—an indication of the long stand-

ing of some of the conditions found. A chondrome, the size and shape of a halved hen's egg, protruded into the lung from beneath the sternal end of the fourth left rib. The lungsacks were entirely obliterated by old, tough adhesions, with the exception of one small space over the right apex, which admitted half the length of two closed fingers. The greater part of both (rather small) lungs were much engorged.

The heart was not much enlarged, though a small, hard fold was all that was left of the bicuspid, and though a pronounced arterio-sclerosis must have been a great impediment to the circulation. Some large trunks, as the pulmonaries, were as hard as bone; the coronaries less so.

The spleen was nearly encased in a bony shell, which presented a healed crack along part of the lower edge. In some places along the outer surface this shell was one-fourth inch thick. (I had intended to preserve this also for your inspection, but through in

\*Read before St. Louis Medical Society, March 5, 1905.

advertence it was recovered into the body and is now beyond reach).

The wall of the stomach contained the smaller specimen exhibited. The surface of the greater curve was matted together for several inches with the transverse colon by the larger growth.

Except an enlarged prostate and one kidney studded with several small cysts, the abdominal organs presented nothing worthy of note for the purpose in hand.

An examination of the specimens presented, made by Dr. Barton, failed to demonstrate their origin. What the history of this man's growth and decay may be is, therefore, largely matter of theory, and this again depends much on what we choose to consider cause and effect—in such cases often interchangeable terms. It may, perhaps, serve a useful purpose to compare different views on this point. A different consideration, however, prompted me to submit this report, namely: that it may offer some small encouragement to our faith in the possibility of being mistaken in our diagnoses and prognoses, even when they would seem to be absolutely beyond dispute, and in the possibility of recovery from disease, no matter how serious; and if not of recovery, of the tolerance of conditions, no matter how incompatible with life they may appear to be. Findings like these may, furthermore,

serve to suggest, even to us medical men, the advantages of a simple life; to put a mild check on our enthusiasm, if ever we should begin to get too busy with modern methods, and begin to feel too big with alleged results therefrom; to remind us that the most important lesson which modern science has taught us is, that in the prevention of disease lies our safety; and that, besides the repair of mechanical injuries, the correction of faulty habits of living constitutes the main principle of treatment for the cure of it; that much (not all, but very much) of even modern medical treatment, beyond this is of doubtful value.

After having finished the inspection of detail, and contemplating again as an entirety the mutilated remains before me, I marveled at the storms this individual must have weathered, to present such a multiplicity of pathological changes. I also marveled at a vitality which managed to eke out an existence in the face of so many difficulties, until a mere accident dealt the slight blow which proved to be the final one. This is an additional reason why I venture to call the Society's attention to this case, though each lesion by itself may not offer anything which is so very extraordinary.

The man died of pneumonia at the age of eighty-one years.

SOME OBSERVATIONS ON THE TOPOGRAPHY OF THE VERTEBRAL SPINES AND LOWER RIBS, WITH REFERENCE TO THE IDENTIFICATION OF THE INDIVIDUAL BONES.

BY VILRAY P. BLAIR, M. D., St. Louis.

I do not believe that the occasion often arises when it is of great importance to locate accurately the individual vertebra in the living subject, but still it is sometimes desirable to state at what point a spinal lesion is situated. This may be very simple, but systematic observations made upon cadavera dissected in the anatomical laboratory of the Washington University, by having students drive tacks in the supposed fifth lumbar, twelfth dorsal and seventh cervical spinous processes before reflecting the skin and then verifying the results during the subsequent dissection, have but strengthened my belief that the habit of starting at the supposed seventh cervical spine and counting down is often more picturesque than accurate.

In the following the dimensions given, unless otherwise stated, are from measurements made on special dissections of the spinal column and ribs of thirteen subjects, and their practical application verified on a number of living people, male and female.

There are a number of classic points for measurement which for practical purposes will locate a point on the spine, but which may not do it with anatomical exactitude in all cases.

The vertebral prominence is a misnomer—see standard text books—as it is the first dorsal that is usually most prominent. The seventh cervical is the one, however, that is usu-

ally first felt when the finger is passed down the hollow of the neck below the axis, but sometimes the seventh cervical spine may be short, or the sixth long, which leaves one in doubt. In thin necks the bifurcated extremity and the great range of movement of the sixth spine during flexion may help to identify it. Roughly, the seventh spine is about one inch below the level of the carotid tubercle, but this is a difficult measurement to make otherwise than with the eye. In all subjects the spine of the axis is easily identified as the first prominent bony point below the occiput, and a point two inches below the tip of this spine will fairly accurately locate the seventh cervical spine. In this, as in all other measurements, the body is supposed to be erect or lying flat on the ventral surface.

It is accepted that the upper angle of the scapula, the arm hanging at the side, is at a level between the first and second dorsal spines, the lower angle between the seventh and eighth; but, as Cunningham states, the lower angle may reach the eighth rib, which would be below the eighth spine.

The most constantly obtainable measurement, which is almost universally recognized, is that a line drawn across the highest part of the crests of the illii will cross the fourth lumbar spine. Kocher says this will cross the fifth, but this is probably the result of measuring from the external lip of the crest. In some sub-

jects all of the spinous processes can be felt with ease. In the muscular and adipose the first and twelfth dorsals will always be distinctly felt, but to identify them is a different matter. The first rib is difficult to feel in the very thin. The twelfth cannot be felt after it gets under cover of the erector spinæ, and we can never be sure, without corroborative evidence, that it is the twelfth that is felt. In fairly stout people no spines can be felt between the second and seventh cervicals. Though the general mass of the dorsal spines is evident from the fourth to the tenth, they are rather slender and incline downwards, so that it is rather the upper edge that is felt, and to distinguish between them is sometimes difficult.

Though we can locate the fourth lumbar, it, the third and fifth are in a deep hollow in the lumbar convexity anterior to the backward projecting illii under the strong lumbar aponeurosis, and can be distinctly felt only in the moderately thin. We have certain spines, as the twelfth dorsal and first lumbar, that we can feel but cannot identify, and others, as the fourth and fifth lumbar, the position of which we can identify but cannot feel. The problem is to connect these. I have made a number of measurements between different bony points to see if any of them were sufficiently constant to be of use. There are a number that are suggestive, but vary. There are others which may be relied upon.

First, as given, the distance between the axis and seventh cervical is about two inches. The line between the highest points of the external lip of the illiac crests passes near the lower

part of the fourth lumbar. Another is that the individual distances between the second, third and fourth lumbar spines are practically the same as between the eleventh and twelfth dorsal and the first and second lumbar. Finally the distance measured horizontally outward from the twelfth dorsal and first lumbar spines to the intersection of the eleventh and twelfth ribs is sufficiently constant to be of accurate use. Now, this is my excuse for my paper.

If we will mark on the skin of the patient the tips of those spines which we can feel, and which in a stout person will probably be the twelfth dorsal and first lumbar and then step off with dividers or a tape the same distances downward until the intersection of the intercostal line, we will have indicated the position of those spines which we cannot feel. Then we can count back from the fourth lumbar and with certainty indicate the twelfth dorsal.

The fifth lumbar is just below the intercostal line, is somewhat pointed and feels as one with the fourth, while the first sacral is below this and may or may not be felt. Having located the twelfth dorsal spine we will indicate on the skin the position of the last palpable rib and then measure the horizontal distance from this rib to the twelfth spine, and if we find that distance is two to two and one-half inches, then we can say positively that this is the twelfth rib; if the distance is three or over three inches, then we can say as surely that it is the eleventh and that the twelfth is absent or more likely does not protrude beyond the erector spinæ. Sometimes it may be more convenient

to estimate from the first lumbar. Then the lateral distance to the twelfth rib is three to three and a half inches, and to the eleventh rib four to four and one-half inches.

The practical point of this is that when we cannot find the twelfth rib if we draw a horizontal line from the first lumbar spine to intersect the last palpable rib and then draw a line connecting this point of intersection with the tip of the twelfth dorsal spine, this second line will be below the reflection of the pleura. There are other measurements that might be used as corroborative, but not as absolute evidence. First, the distance from the fifth lumbar spine to the tip of the coccyx is in the male seven inches, and only in those which were appreciably long did it go over this. In one it was a quarter of an inch less.

In no case was the horizontal distance from the spine to the tip of the

twelfth rib over five inches, nor the distance to the tip of the eleventh less than five inches. In twenty-five subjects the longest distance from the eleventh spine to the tip of the twelfth rib was six and three-fourths inches, while the shortest distance from the tip of the tenth spine to the tip of the eleventh rib was six and a half inches, but in most instances the measurements of the twelfth were well below and of the eleventh rib were well above this view point.

In dealing with as variable a quantity as the length of the ribs, accurate conclusions cannot be drawn from the number of instances cited, but in constant quantities, as the vertical measurement of the spine and the direction of the ribs, thirteen dissections and the observation of a number of models afford sufficient data for deductions.

## UTERINE REPLACEMENT.

By DAVIS FORSTER, M. D., St. Louis.

The great number of different operations which have been devised for the restoration of the retroverted uterus is sufficient proof that no one of them has met with the complete approval of the profession. We can then with profit take account of the different procedures suggested from time to time and find the special indication for those which seem worthy of consideration.

That there is an indication for the replacement of the retroverted uterus is accepted as the consensus of gynecological opinion. True, the normal uterus swings in a hammock in a

*wide arc*, but when it passes the point where intra-abdominal pressure carries the uterus backward instead of forward, there occurs a tension of the blood vessels and a pressure congestion, and it is not too radical to say that a retroversion of this degree becomes pathological in twenty-four hours.

Probably one of the most frequent causes of unsatisfactory results comes from lack of attention to cervical lacerations. Following labor the cervix is torn and mechanically unable to contract its muscular fibers on account of weakening of point of mus-

cular insertion, uterus subinvolved, heavy, boggy, congested and dragging against whatever support the ingenuity of the surgeon may have created, while round ligaments, tubes and even abdominal wall take part in a general subinvolution. If we have taken the precaution of repairing the cervix at the same time we restore the position of the uterus, and support the uterus with a Hodge bridge pessary until after the patient's next menstruation, we will find a profuse flow will take place. The uterus will be one half as large as at time of operation, while a general involution will have supervened.

Statistics say that 5 per cent. of retroversions are cured by the wearing of suitable pessaries, and my own experience has led me to believe that probably 10 per cent. more could be added to the cures if the cervix were repaired before the pessary was adjusted. It is not so much the size of the laceration which is worthy of note as the fact that there is an interruption of the uterine contractile force and an open door for infection.

As regards the operative methods of retaining the uterus: Fixation of the uterus by suturing solidly to the anterior abdominal wall absolutely interferes with the future functioning powers of the woman and is not to be considered where patient has any chance of childbearing.

Ventro-suspension, after the method of Kelly, by forming a peritoneal band, whose object is to hold the uterus in a normal position, is unsatisfactory. The union may be so firm as to approach a fixation, and as was my experience, the operator may find in a subsequent pregnancy the uterus

developed posteriorly at the expense of the anterior wall and during the labor the uterus rolling in an arc with each labor pain. Or, following labor, the band of peritoneum having been stretched to fit the pregnant uterus is unable to return to the normal, with involution of the uterus, and the organ drops back into retroversion. Were this band of peritoneum a normal structure it would involute post partum, and the surgical investigator, in seeking such a structure, found in the round ligament a tissue meeting all the requirements of a uterine suspensory ligament and around the round ligament has grouped the surgical effort of a number of years.

The classical demonstrations of Savage have shown that the round ligament is not a uterine support in the sense of retaining the organ from passing in a downward direction, but normally limits its movement from before backward, and it is only when the ligament is stretched and subinvolved that the uterus retroverts.

There are a number of operations bearing the names of some of our best surgeons, whose object is the intra-abdominal shortening of the round ligaments whether by folding the ligament on itself and suturing in that position, or other procedures as futile, for the reason that the shortening has been done in the thickness of the ligament near the uterus, while the attenuated end entering the abdominal wall bears all the strain of supporting the uterus, and the heavy organ often drags back to its former displacement.

The dividing line on operations involving the round ligament rests on

movability of the uterus and the desirability of inspection of the tubes and ovaries. Given a freely movable uterus and normal tubes and ovaries, and the shortening of the ligaments extra-peritoneally is indicated. But with pelvic lesions present the work can best be done through a median incision into the abdominal cavity.

Alexander was the pioneer of extra-peritoneal shortening, and his results have stood the test of time. Probably the reason that the operation has not become a more popular one is on account of the difficulty in finding the ligament after cutting down on the external ring, and this led another operator (Alexander-Adams) to split up the fascia an inch or more, thus making the technique easier but damaging the integrity of the abdominal wall. The ligament, besides its distribution to the labia majora and insertion into the spine of the pubes, gives off strands of muscular attachment to the walls of the inguinal canal of Nuck, making the drawing down of the cord a matter of a good deal of work and adding the risk of breaking it off in the canal. Therefore, the method of Kellogg was welcomed. With an incision over internal abdominal ring, denuding structures down to aponeurosis of the external oblique muscle, just inside the deep epigastric artery, with the edge of Poupart's ligament as a guide, the round ligament is found and brought through a small puncture. It is drawn out the desired length and woven through a puncture in the external oblique fascia where it is sutured in position. This proceeding, however, is not applicable if it be necessary to inspect the pelvic

contents, and Goldspohn attempted to dilate the inguinal canal for that purpose with the result that he has practically two abdominal incisions instead of one. Vineberg and others have advocated an incision between the uterus and the bladder, drawing out the round ligaments and anchoring them in front of the cervix, but the operation has not gained popularity.

The procedure of Gilliam seems nearest the solution of the matter. Make a median incision three or four inches in length; break up adhesions, and attend to lesions in pelvis; bring fundus forward. Lift up anterior surface of broad ligament on tip of finger, applied to posterior surface, and bring round ligament into view, and catch it up by suture passed around it. Peritoneum muscle and fascia on each side of wound are drawn back in grasp of volsellum, one-half inch above pubes, and a puncture made from outward into peritoneal cavity on each side and the round ligament drawn through and sutured, retaining uterus in a natural swinging position, leaving sufficient room to avoid strangulation of bowel or pressure on the bladder.

The one objection which presents, is the dragging of the round ligament, covered with peritoneum, into the tissues. It is not practical to strip the peritoneum off the ligament, as we do in Alexander's and Kellogg's operation, but it could be done.

On account of the excellence of results the trend of surgical endeavor is towards the operation of Gilliam and Kellogg. Gilliam, where it is necessary to inspect, and possibly remove, ovary or tube to break up adhesions and to attend to lesions of

contiguous organs. Kellogg, where the uterus drops back in hollow of sacrum, whether from the stress of undue exercise or following a pregnancy with laceration, subinvolution, or from the patient's having spent the period of the puerperium upon

her back in bed. The uterus movable, no lesion of adnexa, but with cervix lifted up and mechanically preventing conception, but ready to resume its normal function when restored to its normal position.

## TUBERCULOSIS.

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The symptomatology and pathology of this disease is so well known that it is hardly worth the while to go into the details, but will suffice it to say that it is an infectious disease, caused by the bacillus tuberculosis, the lesions of which are characterized by small knots, or nodular bodies, which are termed tubercles. The old idea of this being wholly a hereditary disease has long since been relegated to the rear. We no longer believe in the doctrine of heredity, farther than that one may inherit constitutional peculiarities that predispose to diseases. For instance, one may inherit a vulnerable condition of the tissues which will weaken the power of resistance, and thus admit the invasion of the tubercular bacilli, or any other pathological microbe.

Tuberculosis is prevalent in all climates and in every race. Statisticians report that fifty per cent. of all post-mortems reveal the deposit of tubercles. It may be said that the aborigines were almost free from its ravages. This will be referred to later on. Not only is man alone effected by this malady, but most all domestic animals. Among the ruminant animals, the cow and the ox being the chief

ones that are effected. It is yet a mooted question whether bovine tuberculosis is transmissible to man, and vice versa. Both sides have some of the leading authorities. Koch, I think, is on the negative side. However, great care should be used in the selection of milch cows. Where there is the least suspicion, microscopical tests should be made for the bacilli. In the years of 1892-1893, 15.1 per cent. of the cattle that were slaughtered at the Berlin abattoir, were infected with tuberculosis. In the United States the percentage is much less, only about 3 per cent.

The treatment may be limited to three remedies, or classes of remedies, oils, hypophosphites, and antiseptics (creosote and guaiacol principally). But before entering into the details of the curative treatment a few words on the preventative treatment will not be amiss. Recognizing, as we do, that we are dealing with an infectious disease, the greatest caution must be used to destroy all sources of infection. All napkins, soiled by the patient's sputum, should be immediately burned. It would probably be best to use a suitable vessel for the patient to expectorate in, having pre-

viously been thoroughly antisepticated. The habit so prevalent with some patients of spitting on the floor, walls, or any place most convenient, should be strenuously condemned by the attendant. This promiscuous spitting, in my judgment, has more to do with causing this widespread of tuberculosis that exists to-day than all other causes combined.

The sputum, containing the bacilli, when spat on the floor, dries and forms dust that is inhaled by the occupants of the room, and thus carried to the lung tissues. It may fall upon the walls or furniture of the apartment and come in contact with some suitable media for its development months afterwards, and inoculate them that breathe the air. The tubercular bacilli is capable of lying in a dormant state for months, then when coming in contact with the proper medium, to form a nidus, it will take on activity and flourish. Nuttall found that from one and one-half to four and a half billions of tubercular bacilli were thrown off every twenty-four hours in a patient with a moderately advanced tuberculosis. Recent investigation have found the bacilli in church houses, public school houses, public halls, street cars, in fact, anywhere that the patient had an opportunity to deposit their sputa.

It seems to me if we ever expect to eradicate, or even retard the rapid increase of this disease, we must devise some plan or means to either destroy or disinfect the sputa immediately after it is spat. For this I would suggest that all that are bed-ridden spit in a container, containing a strong antiseptic solution frequently re-

newed. All those that are able to go about and attend to their various vocations, carry on their body a small cup with a screw cap containing a strong antiseptic solution; renew as often as need be.

The digestive organs of all persons should be carefully looked after, as the onset of tuberculosis often dates back to a digestive disorder. Assimilation is bad. The hydrocarbons are unacted upon and pass out of the body as effete material, thus a great energy producer is lost, the white blood corpuscles or leucocytes, the scavengers of the body, suffer the consequence. Being thus weakened by the limited food supply, they are unable to cope with the invading enemy—the bacilli. The result is that the bacilli capture the fortification and soon have a strong colony of their own.

If we will revert our minds back to the physiological laboratory of our school days, we will remember that we learned that the hydrocarbons furnished the energy that propels the function of the whole human mechanism. The oils and the fats are the principal ones used of this group. They furnish energy for the development of heat, thus sparing the tissue from disintegration. The surplus above that required for compensation is stored up as a reserve force. When there is an imperfect assimilation of the fats, there is an imperfect absorption of the phosphates, which is one of the essential constituents of proper health. Dr. Thomas Bassett Keys tells us that persons keeping up their adipose tissue by eating plenty of fat never have tuberculosis.

If we will go back to the history of the aborigines of this country we will

find that while they lived on the fat of the chase, tuberculosis was almost unknown to them, while today they are affected in the same ratio that we are. Take the Esquiman, in his native climate, where he takes enormous quantities of pure oil, unmixed, tuberculosis is comparatively unknown. But bring him to a temperate climate, where he loses the desire for fats, he is an easy prey for tuberculosis. The want of a desire for fats in these persons when they are brought to a temperate climate, is not so much attributable to the climate as to the habit they form of eating the diet of their new country.

Dr. Brackenridge taught a half a century ago that one could form habits of eating certain articles of food in exclusion of others. Basing our conclusions on Dr. Brackenridge's experiments we should endeavor to have our consumptives to form the fat habit.

The old time-honored symptom, that tuberculosis causes a disgust for fats should be reversed, for it is not the tuberculosis that causes the disgust for fats, but the disgust for fats that causes the tuberculosis.

Preceding the deposit of tubercles, there is a stage of loss of energy. If the patient would have had sufficient reserve force in the form of fat stored away to compensate for the extra strain placed on the resisting forces, the leucocytes, they would never have been overcome by the tubercular bacilli.

It is a well known fact that fats are taken up by the leucocytes freely. That the leucocytes are increased in quantity and quality by a generous supply of fats. Then, if the leuco-

cytes are the scavengers of the body, and guard the portals from the invasion of diseases, is it not reasonable to suppose that if they can destroy an invader they can also destroy the enemy after they have fortified themselves in some organ of the body? Provided they have the energy and are not outnumbered. This being the case, it seems to me that oils and fats rank pre-eminently in the treatment of tuberculosis.

In selecting remedies we should endeavor to select those that cause the least digestive disturbance and are the most easily assimilated. Cod-liver oil is the most easily assimilated of all of the oils and fats. Butter stands next. The reason that so many patients complain of the disagreeable eructations caused from taking cod-liver oil, is probably due to an improper use of the oil. It should be given in minimum doses, say from ten to thirty drops, three times a day, about one hour after meals, gradually increasing the dose up to one-half ounce or an ounce, as the tolerance of the patient demands. By giving it an hour after meals it will pass out of the stomach with the food, which is then well under way of digestion.

Dr. Keys, of the organization committee of the American Congress of Tuberculosis, states that oils and fats are an "absolute cure for consumption." He prefers the hypodermic method of administration, especially where there is a lack of assimilation per orum. He injects about an ounce of olive oil in the subcutaneous tissues once every twenty-four hours, and gives such other remedies as each individual case requires, especially the hypophosphites, the absorption of

which, he claims, are greatly facilitated by the injection of oils. To substantiate his treatment by the hypodermic method, he cites the experiments of Prof. Leube, who brought a dog to a constant weight by feeding him a certain amount of lean meat. A laparotomy was performed, and found that there was an absence of fat in the subcutaneous tissues and but mere traces in the mesentery. The wound was closed, which soon healed. The dog was fed the same amount of lean meat as before the laparotomy for the next one and one-half months, and in addition a total of 1,400 grams of butter was injected. The weight increased from 3,880 kilos to 5,360 kilos. A second laparotomy revealed an abundance of fat in the subcutaneous tissues and mesentery. The injections of butter were then discontinued and the dog kept on the same meat diet; the weight slowly diminished to 3,850 kilos. Post mortem revealed a total absence of fat.

This experiment with butter teaches us very forcibly that we should encourage our consumptives to eat freely of butter.

The hypophosphites perform a double function; their presence in the blood enables it to carry off a greater amount of effete material that is of no more use to the body and is detrimental to healthy cell metamorphoses. It stimulates assimilation, thus enabling the system to take on a greater supply of force with which to overcome the consumption caused by the tubercular bacilli.

The administration of antiseptics is of doubtful efficacy. It seems plausible that an antiseptic that will de-

stroy germ life will also destroy cell life. The same is true of inhalations. I have heretofore given creosote and guaiacol with marked improvement, which was probably due to the fact that these preparations are principally eliminated through the mucous membrane of the organs of respiration, upon which they exert a favorable influence, especially on the catarrhœal condition that usually accompanies tuberculosis. It acts by destroying the products that serve as a nidus for the development of the bacilli. Small doses, diluted, act favorably on gastric irritation.

The climatological cure for consumption is rapidly passing into oblivion. Only a few weeks ago, at the meeting of the International Congress of Tuberculosis in St. Louis, Dr. Annie Lyle, of San Francisco, California, spoke feelingly of the afflux of consumptives to that resort, causing the natives to become afraid to remain there. The statistics of 1900 show that California has a greater percentage of death rates from tuberculosis than any other state in the union. These startling facts cause us to conclude that the best place for our tubercular patients is at home, taking plenty of moderate exercise in the open air.

Many so-called "specifics" have sprung into existence, but have passed away with decadence as mysteriously as they sprang up.

Symptoms and complications often arise that must be treated according to their indications, but in no case should symptoms be treated at the expense of the stomach.

## TREATMENT OF CERTAIN EXTERNAL DISEASES OF THE EYE BY X-RAYS.

BY JOHN GREEN, JR., M. D., of St. Louis, Missouri.

In the following paper I propose to give a brief resume of radiotherapy as applied to certain external diseases of the eye and its appendages, in the hope that your interest may be awakened in a branch of ophthalmic therapeutics which is still in its infancy, but which, if results already attained be any criterion is destined to prove a valuable adjuvant to time-honored methods of treatment. The number of cases of ocular disease submitted to the rays is still too small to admit of any positive dicta relative to the precise limitations of the treatment and the diseases to which it is applicable. Nevertheless, results in certain classes of cases have been so uniformly excellent as to leave little room for doubt in the mind of an unprejudiced observer that a therapeutic method of superior merit has been added to the ophthalmic armamentarium.

The brilliant results obtained by dermatologists in the radiotherapy of cutaneous carcinoma led to the utilization of the rays in the treatment of this disease as it manifests itself in the eyelid. As you are doubtless aware, these skin cancers of the eyelid have heretofore proved very difficult to deal with. Treatment consisted either in the application of caustics—a method which usually proved of little value—or in the removal of the growth by operation. These methods, even when successful, had the disadvantage of creating thick contracted cicatrices which grossly deformed the lid margin. Plastic operation, while lessening the deform-

ity, failed to yield a result cosmetically perfect. Furthermore, recurrence of the disease was to be expected in a certain proportion of cases. One of the first to approach the question from the standpoint of the ophthalmic surgeon was Sweet<sup>1</sup> who reported three cases of epithelioma of the eyelid treated by radiotherapy. Of these two were entirely cured; in the third, the early improvement was not maintained. The failure in the latter case was ascribed to the fact that the rays were prevented from exerting their maximum effect on the orbital portion of the tumor, the patient refusing to permit the removal of the overlying atrophic globe. In a more recent paper Sweet<sup>2</sup> states that he has treated twenty cases of palpebral epitheliomata and has effected a cure in eighteen. One of the failures is referred to above. In the other—a case of rodent ulcer of the side of the head—the rays acted well for a time, but later the disease spread to the external canthus. In all the successful cases the diseased area was covered in by pliable, normal-appearing skin. One of the effects of the treatment is the notable relief of pain which Sweet ascribes to trophic change, possibly secondary to changes of degeneration in the finer nerve filaments. The cure was effected with a minimum of distortion of the lid margin. Recurrences were infrequent and were readily controlled by a secondary application of the rays. Similar results have been obtained by Pusey<sup>3</sup>, Mayou<sup>4</sup> and others. The attitude of all work-

ers in this field is well expressed by Sweet who states that "it is no longer right to resort to plastic operations in cases of epithelioma and rodent ulcer of the eyelids."

The technique of the application does not differ from that used by dermatologists: Thin sheets of lead with an opening cut to correspond to the diseased area, are used to protect the uninvolved portion of the face. The patient is placed from six to ten inches from a low vacuum tube. The sittings, which should be of five to ten minutes duration, will vary in frequency with the severity of the case. "Burns" are to be avoided by refraining from too long and too frequent exposures and by keeping the patient at a sufficient distance from the tube. With a view to preventing recurrence, it is recommended that sittings be continued from time to time after healing has taken place.

The application of the x-ray to a disease exclusively ocular was first carried out by Mayou<sup>5</sup>, who reported the cure by this method of a case of trachoma. He was led to experiment with radiotherapy in this disease on the following considerations: The efficacy of the treatment by caustics is due partly to the production of a leucocytosis with subsequent cicatrization of the trachomatous nodules, partly to the mechanical removal of the diseased tissues, and the destruction of the specific causative agent. Caustics possess the disadvantages of partially destroying the normal palpebral epithelium, thus increasing the tendency to scar formation. The x-ray is an agent capable of producing a more or less prolonged leucocytosis from the mildest to the in-

tensest grade without (except under ill-regulated exposures) seriously impairing the integrity of normal epithelium. Theoretically, therefore, it should exercise a most favorable effect on trachomatous tissue.

Judging from the surprisingly rapid and complete cure in this and subsequent cases it must fairly be admitted that Mayou's theoretical contentions have been borne out by the results of treatment. The technique of the application is described as follows: The upper lid being everted, the lower is pushed up so as to cover the cornea; in pannus the cornea is left exposed; the patient is seated nine inches from the anode of a moderately soft tube and is given daily sittings for four to six days, followed by a week's rest. Should there be no reaction the sittings are continued twice a week until the appearance of photophobia, which indicates the beginning reaction. Shortly after the trachoma bodies begin to disappear. Sittings are continued once or twice a week until the masses are no longer visible. A certain amount of injection of the conjunctiva persists for several weeks after cessation of treatment and it is not possible to tell whether all masses have disappeared until this has subsided. Pannus disappears rapidly and old opacities and corneal scars clear up surprisingly.

The cases best suited for treatment are those of the ordinary chronic type. Acute cases exhibiting diffuse infiltrations with much photophobia require very careful management and are not so favorably influenced. In the end the conjunctiva is left free from scars and uncontracted. The following positive advantages are claimed (1), the

cure is effected with a minimum deformity of the lid; (2), the treatment is painless; (3), pannus clears with unexampled rapidity.

Mayou's results have been confirmed by a number of observers, notably Stephenson and Walsh.<sup>6</sup> In four cases of severe bilateral trachoma these authors subjected one eye only to the x-ray, the fellow (or "control" eye) being either untreated or treated by ordinary methods. Two cases were absolutely cured, the other two showed marked improvement, while in all the "control eyes" remained *in statu quo*. In the same paper the authors report the complete cure of a severe case of trachoma by the application of a mild high frequency brush by means of a vulcanite electrode. This interesting result led them to advance the suggestion "that the common agency may be a brush discharge visible from a high frequency electrode, but invisible from the focus tube." The two methods have been combined by Geyser,<sup>7</sup> who reports eighteen cases successfully treated. After six to eight exposures to the x-ray the treatment is continued by the direct application to the conjunctiva of a high frequency vacuum electrode, for from one to three weeks.

A case of tuberculosis of the conjunctiva in which the clinical diagnosis was substantiated by microscopic examination, the finding of the tubercle bacillus and successful animal inoculation was subjected to the x-rays by Stephenson.<sup>8</sup> The case was practically well at the end of six weeks, no trace of disease remaining two months later.

It is noteworthy that the cure was effected without the slightest deformation of the lid margin.

Any practitioner who has attempted to treat a case of vernal conjunctivitis has probably reached the end of his therapeutic resources long before he has made a permanent impression on this intractable disease. The success which attended the application of x-rays in a case of Allport's<sup>9</sup> would seem to offer grounds for the hope that this method, if not productive of a permanent cure, would at least hold the disease in check during the annual hot weather exacerbations. Disappearance of the granulations from the lids and corneal margins with the complete relief of subjective discomfort—lachrymation, burning and itching—were secured in a case of seven years' standing.

Harper<sup>10</sup> reports the entire disappearance under x-ray treatment of three dark spots of pigment which persisted after the operative removal of a melano-sarcoma of the sclera. Pusey applied the rays in a case of deep carcinoma of the orbit and in glioma recurring after operation for glioma of the retina. In both there was evident retardation of the malignant process.

A consideration of recent radiotherapy of the eye would be incomplete without reference to a case of sarcoma of the orbit recently reported by Fox.<sup>11</sup> The tumor was attached to the bone in the naso-orbital region and had caused a marked exophthalmus. The case was deemed inoperable and x-ray treatment instituted. Fifty-five exposures with a high vacuum tube resulted in the complete disappearance of the visible and palpable tumor and the restoration of facial symmetry.

It is a remarkable and interesting

fact that the only deleterious effect of x-radiance upon the eye has been the production of a mild conjunctivitis. Taking into consideration the susceptibility to x-rays of the most highly differentiated epithelial elements, Pusey suggested the possibility of atrophy of the rods and cones of the retina from x-ray exposure. His fear has proved groundless.

All observers agree that the cellular elements of a tissue are primarily influenced by x-rays. The epithelial cells are affected in the highest degree, next the blood vessels, and in lesser degree the other tissues. The first effect is one of stimulation, which is followed by disintegration of the cell structures. Certain proliferative changes then take place in the inner coats of the blood vessels. Later, an inflammatory reaction appears, with pronounced leucocytosis. Finally, the leucocytes complete the destruction of the degenerated cells. The reaction of pathologic tissue is similar, except that the cells of these tissues being, as Pusey puts it, "relatively unstable," are more susceptible to the profound nutritional disturbance produced by x-radiance, and hence are disintegrated by a degree of radiance insufficient to impair the vitality of normal tissue. I have been unable to find any account of histological examination of trachomatous tissue during the period of x-ray treatment. It is probably fair to assume that the tissue changes are not widely different from

those which take place in the skin. In the light of our present knowledge of the radiotherapy of ocular disease, the following conclusions would seem to be justified:

1. In epithelioma and rodent ulcer of the eyelid, radiotherapy surpasses all other methods of treatment.

2. In selected cases of trachoma, radiotherapy offers the possibility of rapid cure. The treatment is practically painless, and the cure is effected with a minimum of deformity to the lid.

3. The method is worthy of trial in cases of vernal conjunctivitis, tuberculosis of the conjunctiva, orbital sarcoma and carcinoma, and in recurrence of glioma after operation for glioma of the retina.

4. The treatment is without danger to the function of sight.

225 Vanol Building.

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# —JOURNAL—

## MISSOURI STATE MEDICAL ASSOCIATION

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NEXT ANNUAL MEETING OF THE MISSOURI STATE MEDICAL ASSOCIATION, EXCELSIOR SPRINGS, MAY 16, 17, 18, 1905.

## EDITORIAL.

### IMPORTANT MEDICAL MEETINGS.

During the month of April Dr. J. N. McCormack, chairman of the committee on organization of the American Medical Association, will visit Missouri at the request of the judicial council of the State Medical Association,

who have arranged to have meetings in the various districts of the state. Every physician, whether a member of a county society or not, is cordially invited to attend Dr. McCormack's lecture. Dr. McCormack has been chairman of the committee on organization of the American

Medical Association from the inception of this work. He has visited almost every state in the Union in the last four years in the interests of the organization, and has made a study of professional methods and professional needs. The following itinerary has been arranged :

DeSoto, Saturday, April 1st, at 2 P. M.

Pacific, Monday, April 3d, at 2 P. M.

Jefferson City, Tuesday, April 4th, at 2 P. M.

Boonville, Wednesday, April 5th, at 1 P. M.

Sedalia, Wednesday, April 5th, at 8 P. M.

Springfield, Thursday, April 6th, at 2 P. M.

Joplin, Friday, April 7th, at 2 P. M.

Nevada, Saturday, April 8th, at 2 P. M.

Butler, Monday, April 10th at 2 P. M.

Plattsburg, Tuesday, April 11th, at 2 P. M.

Savannah, Wednesday, April 12th, at 2 P. M.

Chillicothe, Thursday, April 13th, at 2 P. M.

Moberly, Friday, April 14th, at 1 P. M.

Macon, Friday April 14th, at 8 P. M.

Hannibal, Saturday, April 15th, at 2 P. M.

Bowling Green, Monday, April 17th, at 2 P. M.

The importance of these meetings cannot be overestimated, and it is to be hoped they will be largely attended.

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#### ANNUAL MEETING.

The annual meeting of the State Medical Association will be held at

Excelsior Springs, May 16, 17, 18, 1905. Tuesday, May 16th, will be devoted to meetings of the officers, including the judicial council and house of delegates. Should any meeting of the legislative body of the association be required on the 17th or 18th, it will be held in advance of the morning session of the association, so that all members may have the opportunity of taking part or listening to the scientific program.

The second and third days will be devoted to scientific work.

On the evening of the first day of the scientific program the arrangements committee expects to give a luncheon, following the president's address.

The number of contributions to the program will be limited, and a special feature made of the discussions.

Each essayist will forward to the chairman of the committee on scientific work, one month prior to the meeting, an abstract of his paper, a copy of which will be sent to those members invited to take part in the discussion.

All papers to be read before the meeting are to be in the hands of the committee not later than May 1st, so that in event of the absence of the writer the paper may be read by title.

It is believed the next meeting will be the largest in point of attendance in the history of the State Medical Association.

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#### THE DISTRICT SOCIETY.

At a special meeting of the Judicial Council, held in St. Louis, March 1st, it was decided that no district society would be in affiliation with the Missouri State Medical Association after

May 16, 1905. When the Association was reorganized it was decided to (temporarily) admit district societies, though there was no provision in the Constitution authorizing such action. Many members of the Judicial Council believed a year or two would be required in which to organize county societies, and in order that all regular physicians might have the opportunity of becoming members of the State Association the district society was temporarily admitted. From the above date no district society will be in affiliation with the State Medical Association. It is generally believed the action of the Judicial Council will meet with the approval of all members.

#### THE LATEST ADDITION.

The Barton County Medical Society is the latest addition to the list of affiliated county societies. Dr. G. D. Allee of Lamar, Missouri, is president, and Dr. J. L. McComb of Kenoma, Missouri, is secretary-treasurer. Gradually the entire State is becoming organized, and within the next sixty days there is reason to believe the membership will be increased to 2,000.

#### THE ANNUAL DUES.

Although the Constitution provides for the payment of annual dues January 1st of each year, there are several county societies in affiliation with the State Medical Association who have not yet forwarded dues for 1905-1906. Those societies on the delinquent list are earnestly requested to send in their contributions without delay.

The North Missouri Medical Association meets at Trenton, Missouri, June 15th and 16th. An interesting program has been prepared and a large attendance is expected.

The Southeast Missouri Medical Association meets in Charleston the first Tuesday in May. A number of the best known members of the Association are to read papers. The attendance promises to be good.

#### NEW MEMBERS RECEIVED.

C. O. Lewis, Fayette.  
 W. H. Addington, Spickards.  
 F. H. Weiss, Kansas City.  
 R. E. Castelaw, Kansas City.  
 C. G. Pinckard, Kansas City.  
 W. C. West, Kansas City.  
 Noah Adams, Kansas City.  
 George B. Norberg, Kansas City.  
 John W. Kepner, Kansas City.  
 J. C. Martin, Kansas City.  
 H. H. Lane, Kansas City.  
 C. W. Pickerill, Kansas City.  
 J. W. Kimbertin, Kansas City.  
 J. W. Beil, Kansas City.  
 George Gellhorn, St. Louis.  
 R. C. Forsythe, St. Louis.  
 R. H. Kuhman, St. Louis.  
 H. Muetze, St. Louis.  
 R. W. Mills, St. Louis.  
 T. R. Ayers, St. Louis.  
 F. G. A. Bardenheier, St. Louis.  
 R. P. Scholtz, St. Louis.  
 Charles Tooker, St. Louis.  
 W. U. Kennedy, St. Louis.  
 Ed. Quinn, Brashear.  
 J. W. Martin, Kirksville.  
 E. A. Grim, Kirksville.  
 E. C. Grim, Kirksville.  
 M. R. Trumbower, Monett.  
 N. F. Kelley, Kennett.

W. B. Finney, Kennett.  
 G. L. Johnson, Kennett.  
 Thomas J. Rigdon, Kennett.  
 Paul Bauldwin.  
 Van H. Bond, Cotton Plant.  
 Thomas H. Egbert, Kennett.  
 A. B. Mobley, Kennett.  
 J. F. Cowell.  
 B. D. Crowe, Caruthersville.  
 M. H. Huggens, Caruthersville.  
 J. G. Luten, Caruthersville.  
 G. W. Phitts, Caruthersville.  
 H. F. Byars, Caruthersville.  
 A. R. Conrad, Caruthersville.  
 M. B. Hendricks, Caruthersville.  
 Charles Martin, Caruthersville.  
 Paul Tipton, Cooter.  
 R. C. Wichterich, Cape Girardeau.  
 W. K. Statler, Oak Ridge.  
 R. F. Henderson, Jackson.  
 Elmo Porterfield, Cape Girardeau.  
 A. E. Hart, Dutch Town.  
 E. E. Higdon, Allenville.  
 J. J. Hodges, Granby.  
 G. W. Harrison, Newtonia.  
 W. D. Brown, Newtonia.  
 J. B. Hancock, Newtonia.  
 E. C. Haller, Harrisburg.  
 V. Q. Bonham, New Franklin.  
 U. B. Chapman, Diamond.  
 J. M. Bridges, Tipton Ford.  
 J. W. Lamson, Neosho.  
 Paul C. Yates, Neosho.  
 A. Maas, Neosho.  
 W. A. Cravens, Granby.  
 H. L. Porter, Seneca.  
 J. W. Langley, Granby.  
 S. A. Russell, Stella.  
 C. M. Roseberry, Neosho.  
 H. Bowers, Neosho.  
 A. M. Mixer, Neosho.  
 C. T. Cleave, Neosho.  
 H. F. Foster, Neosho.  
 R. L. Willis, Neosho.  
 William Campbell, Seneca.

Maurice Andre, St. Genevieve.  
 C. J. Hertie, St. Genevieve.  
 F. E. Hinch, St. Genevieve.  
 R. W. Lanning, St. Genevieve.  
 G. M. Rutledge, St. Genevieve.  
 A. G. Meyer, St. Genevieve.  
 C. Moore, St. Mary.  
 L. D. Burgess, St. Mary.  
 H. J. Morganstein, Weingarten.  
 H. J. Counts, Ulam.  
 Robert C. Forsythe, Kirkwood.  
 S. C. Slaughter, Fredericktown.  
 W. H. Baron, Mine La Motte.  
 R. G. Epperly, Prairie Hill.  
 D. V. Wale, Carthage.  
 M. B. Harrutum, Joplin.  
 P. L. Freeland, Joplin.  
 C. E. McBride, Webb City.  
 W. H. Rogers, Ashburg.  
 P. E. Coil, Mexico.  
 Herbert Lanier, Martinsburg.  
 Charles Baker, Santa Fe.  
 W. E. Blankenship, Madison.  
 F. H. Carger, Madison.  
 W. S. Winters, Asherville.  
 Eli Wilson, Leora.  
 B. J. Cline, Ardeola.  
 F. W. Gale, Marquand.  
 T. M. Hudson, Perryville.  
 G. N. Blaylock, Silver Lake.  
 C. B. Bowman, Longtown.  
 J. P. Clark, Perryville.  
 T. F. Estel, Atlenberg.  
 K. C. Garner, Crosstown.  
 W. H. Hatcher, Perryville.  
 L. R. Manning, Brewer.  
 D. F. Morton, Perryville.  
 J. W. Russell, Longtown.  
 F. M. Vessells, Perryville.  
 John S. Montgomery, Milan.  
 C. C. Cooper, Rolla.  
 J. W. Johnson, Hayti.  
 P. P. Ferguson, Steele.  
 Andrew F. Bugg, Pascola.

## NEWS ITEMS.

**Object Lesson in the Mortality in Japanese Army.**—In nine months there have been but forty deaths from disease in the immense army commanded by General Oku, a record that is believed to be unequalled in the world's warfare. There have been treated since May 6, when the army landed, 24,642 cases of disease, but only two score of deaths have resulted. There were only 193 cases of typhoid fever, 342 of dysentery, and of beri beri 5070. The casualties of this army from May 6 to December 19 were: Killed—Officers, 210; men, 4917. Wounded—Officers, 743; men, 20,337. Missing—Officers, 4; men, 402. The percentages of the other Japanese armies are believed to be about the same.—*American Medicine.*

**The Walter Reed Memorial.**—The following letter from Dr. Daniel E. Gilman has been published by *Science*: At a meeting of the association held in Washington a committee was appointed, of which I was made chairman, to take such measure as might be wise for securing a permanent memorial of Major Walter Reed, U. S. A., in recognition of his important services to humanity. Acting under this authority, it was at length found expedient, after several preliminary meetings, to form an incorporation in the city of Washington to hold such funds as might be contributed. This incorporation is now endeavoring to raise the sum of \$25,000, of which the income may be paid to Mrs. Reed and the principal may be devoted to a permanent memorial of Dr. Reed.

More than \$13,000 has been subscribed already, a large part of this amount coming from the medical profession. This is all in addition to the action of congress, which has given, on the representations of your committee, an annual pension to Mrs. Reed. The effort is now making to secure the additional sum of \$12,000, and the co-operation of all members of the American Association for the Advancement of Science is urgently desired.—*American Medicine.*

A bill to appropriate \$300,000 to the free hospital for poor consumptives at White Haven, Pennsylvania, has been introduced into the state legislature of Pennsylvania. Of this sum \$100,000 is for the maintenance of the sanatorium at White Haven; \$100,000 to assist in the erection and equipment of new buildings to increase the capacity to as near 300 beds as possible, and \$100,000 to assist in purchasing a site at a suitable location and in erecting buildings for the care of more advanced cases of tuberculosis than can be accommodated at White Haven.

**Rupture of the Rectus Abdominalis in Cavalrymen.**—In the *Archives de Medicine et de Pharmacie Militaires*, August, 1904, and September, 1904, M. Lenez states that rupture of the rectus muscle of the abdomen has attracted little attention heretofore, and deserves some study. It occurs almost exclusively among recruits, under the following conditions: A cavalryman is mounting without the aid of his

stirrups; while springing to the saddle he experiences a sharp pain in the hypogastric region, resembling a knife stab; he cannot repeat the attempt, nor can he move even; respiration is suspended for an instant, or is entirely costal; he is doubled up, his face is pale, he has a sensation of tearing and weakness in the lower abdomen to the lumbar region. General symptoms.

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**Dr. Cushny Goes to England.**—Dr.

Arthur R. Cushny, for the past twelve years professor of pharmacology in the department of medicine and surgery of the University of Michigan, has been made professor of pharmacology in the medical department of the University College, London. Dr. Cushny graduated in arts and in medicine in the University of Aberdeen, and then took up the special study of pharmacology with Prof. Schmiedeberg at Strassburg, in whose laboratory he has become private docent. When Prof. Abel left the University of Michigan in 1893 and went to Johns Hopkins, Dr. Cushny, whose research work had already attracted attention on account of its high degree of excellence, was called to Michigan to fill the chair of pharmacology. During his twelve years of residence in this country he has made many valuable original contributions to the science of his special subject. Some of his most important papers have been those bearing on the action of digitalis, caffeine, spartein, saline cathartics and the atropin group. He has recently contributed to the *English Journal of Physiology* a series of researches on the physiology of, and the effect of medicinal agents on the ac-

tion of the kidneys. He has made valuable contributions on the physiology of the mammalian heart and the interpretation of pulse tracings. His text-book on pharmacology received immediate recognition, and has already passed through several editions. In his departure from this country America loses and England gains one of the most thorough scientific investigators in medical science.—*Journal A. M. A.; Southern Med. and Surg.*

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**Comparison of the Medical Departments of the American and Japanese Armies.**—The Baltimore *Sun* remarks editorially: "We have here in the United States the men of training, skill, courage and professional zeal to form an army medical corps unsurpassed in the world, but we lack the intelligence to understand that to be efficient from first to last in war it must be organized, trained and maintained in time of peace. That is in reality the only lesson with regard to medical service that we have to learn from Japan. When we have taken it to heart we can duplicate her finest achievements and probably surpass them."

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**Gymnastics and Athletics, with Special Reference to Football.**—Colonel Valery Haward, in an article under this title, which appears in the March number of the *Journal of the Association of Military Surgeons of the United States*, sums up and draws conclusions regarding football as follows: Football, as developed in this country, is an especially American game, appealing strongly to our love of the strenuous and combative arts, and therefore difficult to control and keep

within safe and proper limits. Stringent rules should govern it. All trickery, unfairness and deception must be eliminated. Unless it be kept clean, sportsmanlike and gentlemanly it has no *raison d'être*.

As regards mere physical development, better results can be obtained by graded gymnastics and less strenuous games. It is more or less dangerous to the body, and in order to reduce liability to injuries, and the possibility of disability in after life, certain important conditions must be observed. No young man should play it who is under eighteen, and not declared physically sound after careful medical examination. He should be well developed in muscle and chest capacity for his age and height. Careful training is absolutely necessary—that is to say, an intelligent grading of work without sudden violence, so as to develop the highest degree of efficiency and endurance without harm to any of the organs. It is by overtraining that the heart, lungs or kidneys may be permanently injured, and that are laid the seeds of future evil. The well-trained player overcomes his enemy without hurt to him or to himself; it is the beginner or blundering amateur who does most of the mischief.

Since football is positively detrimental to studies, no one should be allowed on the team who stands so low in his class that his chances of graduation would be jeopardized.

Football is mostly commendable for certain traits of mind and character which it brings forth, and which render it a valuable game for military and naval academies.

That football can, and should, be

modified by the elimination of its objectionable features, and thus made entirely acceptable to all educational institutions, is admitted by many, if not most, of its best friends. There should be less mass-play, with its heaps of writhing bodies; more kicking and running; more opportunities for strategy and tactics. An open game would also be much more interesting to the public. The player should not be obliged to exhibit himself in the arena, carrying fourteen pounds of armour and padding, a deformed and grotesque object. Is it possible to picture to our minds the athletes of the Olympic games in such guise?

In all inter-collegiate games, modifications or improvements, to be effective, must be participated in and binding on all the leading institutions. Such concerted action is always slow and difficult, but certainly not impossible. College faculties, judging from their utterances, seem to regret the very great exaggeration given to athletics of recent years, especially the undue importance assumed by football, but do not appear to be taking any decisive action to correct the evil. Upon them devolves the duty of vigorous initiative.

To be really useful as a means to education, a game should be open to a majority of the students; but so much is exacted from a football player, in weight, strength and vital capacity, that few come up to the standard, and a majority are debarred.

The rules should be so modified as to permit the admission of youths who would make up in speed, agility and adroitness what they lack in weight of flesh. If football is good

for the few, it must be good for the many, and should be brought to the level of all able-bodied students of normal physical development. This is especially true of West Point and Annapolis. In these institutions football should be recognized as one of the chief means of physical culture. Instead of one team in each academy, there should be three or four, each composed of members selected from all the classes, so that the teams may be about evenly matched. The playing of team against team in the same institution would bring out much of the stimulus and excitement now only aroused by games with other institutions.

Were this system adopted in colleges there would not be the same eagerness for contests with outside teams, the danger of lapsing into professionalism would be diminished and much less time wasted.

Some of the defects of the present system are well exposed by the editor of the *Medical News*: "Instead of carefully training each and every student physiologically and systematically, so that his bodily defects shall be corrected, and so that his body shall be a supple, strong and beautiful servant of the mind, there is a concentration of all training upon one man out of a hundred for a special and not by any means beautiful purpose; ninety-nine let one do their exercising (excepting the vocal part) for them, and we have the noteworthy result—vicarious athletics, or gymnastics by proxy."

Since football is, to a great extent, a military game, and, therefore, well adapted to cadets and midshipmen, it does not follow that it is suited to sol-

diers and sailors. They have not received the thorough training which is indispensable, and, at their age, such training is hard and often impossible. Furthermore, they are less capable of the self-control and subordination absolutely necessary for a clean game. The result is that when soldiers play football the casualties are likely to be many and serious; thus, in his sanitary report for November, 1903, the surgeon of Fort Hamilton states that "twenty-one injuries incident to football occurred in the command between October 9th and November 30th, embracing dislocations of the hip, dislocation of the shoulder, fracture of the collar bone, severe sprains and contusions of shoulders, knees, wrists, ankles and muscles." Many other post surgeons have had the same experience. As a general rule, football is not for soldiers nor for anyone who does not receive the necessary training before the end of his twenty-first year.—*Journal of the Association of Military Surgeons.*

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**The Russian Army Medical Service in Manchuria.**—In an interesting article in the *Outlook*, George Kennan presents a series of quotations from observers of the situation in Manchuria, all of which are agreed as to the disorganization existing there. Mr. Demchinski, a prominent Russian publicist, remarks concerning a so-called "sanitary train without special appliances," which he saw in Manchuria, that it had been en route with 868 sick and wounded men for three days, during which time the sick had had nothing to eat, no place for cooking being provided. From that time the train was still eighteen hours in

reaching its destination, where it arrived at midnight when it was impossible to unload or feed the sick. In order to accommodate the 868 men they had to be put on "nares" or platforms in two tiers, one above the other. There was not a single medical man, attendant or nurse on the train. When the patients from the upper berths rolled down upon those in the lower, as frequently occurred, there was no one to put them back in their places. In two of the cars there were forty-eight typhoid fever patients, and when the conductor asked the authorities for at least one attendant to care for them, because of their tossing about in delirium and often trying to throw themselves out of the train when in motion, the request was denied. The statements of still other observers report that the corruption in connection with the funds for the care of the sick and wounded is indescribable, that the handling of the wounded is managed with shocking carelessness and haste, and that the means of identification are deficient and defective in the extreme.—*Journal of the Association of Military Surgeons.*

**Danger in X-Ray Exposure.**—A warning against the haphazard and indiscriminate use of the x-ray by inexperienced operators seems particularly opportune at this time, as the lay press of San Francisco has so recently published the case of the unfortunate Mrs. Fleischman - Aschheim, whose arm was amputated, a few weeks ago, for an epitheliomatous degeneration caused by repeated exposure to these rays. Dr. P. M. Jones, the pioneer of this work on the Pacific Coast,

suffered from x-ray burn of the hand as early as 1896; though 1900 he gave up this work entirely, even at the present writing trophic and degenerative changes are going on in that important member of his anatomy. Other men have been forced to give up the use of this valuable agent on account of burns, or, as in one case, on account of neurasthenic symptoms such as have been early described by French authors. The literature germane to the subject describes the oblique action and dangers of the x-ray most comprehensively. But it seems that the general rank and file of the profession have not had sufficient access to these publications or taken cognizance of them.

The operator should be thoroughly protected by a lead screen. The use of the operator's hand to test the condition of the tube is extremely dangerous and accounts for many burns. Fluoroscopic examinations expose the operator to the action of a quantity of the rays; hence, if frequently resorted to, it becomes a decidedly dangerous method. Changes in the skin of patients treated by the x-ray takes place, in many instances, even years after the exposure. These changes resemble closely the various scleroderma-like conditions of the skin. For this reason trivial conditions of the face, hands, etc., should not be treated with the x-ray as the sequelæ may be more serious and disfiguring than the original trouble.—*California State Journal of Medicine.*

**On Auxiliaries of Climatotherapy.**—I. Bennet Yeo, in the *Practitioner* for December, 1904, refers to a previous

statement by him that "care without climate is better than climate without care," and that "it is possible to make bad use of a good climate and good use of a bad one." In other words, something more than unaided change of climate is necessary in the treatment of tuberculosis, and hence arose the method of treating this disease in sanatoria.

The care in such institutions means strict attention to the smallest details of a patient's life. This rigid care

which is exercised over tuberculosis patients ought also to be exerted over patients who are sent to sanatoria for treatment of chronic gastric catarrh, early hepatic cirrhosis, diabetes, albuminuria, chronic rheumatism, chronic paludism, and many other forms of chronic disease. With suitable regulation of diet, baths, exercise and amusements many troublesome cases that are now neglected might be cured.—*New York Medical Journal*.

## COUNTY SOCIETY NOTES.

### THE ST. LOUIS MEDICAL SOCIETY.

Dr. F. L. Henderson, President.  
Dr. J. C. Morfit, Vice-President.  
Dr. T. A. Hopkins, Secretary.  
Dr. R. M. King, Treasurer.

#### REPORT OF THE ST. LOUIS MEDICAL SOCIETY, FEBRUARY 18 TO MARCH 11, 1905.

The society convenes in the St. Louis Medical Library Association Building, at No. 3525 Pine street. Meetings are held every Saturday night, and during the period from February 18 to March 11 four meetings have been held. The following interesting demonstrations and papers have been presented for consideration.

Dr. Jesse S. Meyers presented a paper and demonstration on an "Improved Method of Determining the Size and Position of the Stomach with the Aid of the X-Ray." To demonstrate how difficult it is to obtain satisfactory photographs of the stomach he presented a number of cuts made after the best methods commonly in

vogue. All of the cuts presented a more or less indefinite outline, and the best were only fairly satisfactory. Dr. Meyers contrived an instrument consisting of an ordinary stomach tube, into which a flexible wire spiral was inserted, and a small copper wire so fastened to the lower end of the tube as to cause it, when pulled, to curve in conformity with the greater curvature of the stomach and to allow the end to closely approach the pylorus. By using this instrument and the x-ray he obtained a series of photographs of normal and abnormal stomach positions which show a decided improvement over those taken by methods formerly in use. The paper was of a decided scientific nature, and was discussed by Dr. F. A. Glasgow.

Dr. Jno. C. Morfit presented a specimen of sarcoma and patient, and Dr. F. Fahlen presented a paper on "Remarks on Pathology of Sarcoma." The case was operated on by Dr. Morfit over two years ago. The entire left clavicle, the manubrium and a portion of the first rib were removed and

the specimens demonstrated. The patient is now healthy and strong, and but very little deformity is to be noted. Since the first operation a small tumor resembling a sarcoma appeared near the left knee and was removed. Following this, a threatened return of tumor at site of first sarcoma was prevented and stopped by injections of Coley's fluid and by the x-ray. The Coley fluid was used in ascending doses of from 2 m. to 18 m., given each alternate day, and injected at a point distant to the original tumor. A distinct reaction occurred after each injection, seemingly no greater after the large dose than the small one, after the patient was gradually accustomed to the treatment. Dr. Morfit believes that the patient was very materially benefited by the injections of Coley's fluid, and several members, in discussing the paper, reported cases in which they obtained good results. Dr. Grindon, in his discussion, reported a case in which a diagnosis of "carcinoma in the abdomen" was made some twelve years ago, and that injections of Coley's fluid caused the tumor to disappear, and the patient is living and in good health. Dr. Fahlen stated that a pathological examination of the sarcoma specimens revealed many spindle cells, and also stated that sarcoma of the bone usually first attacks the epiphyseal ends. Paper was also discussed by Drs. Glasgow, Clopton and Blair.

Dr. A. N. Ravold demonstrated a new test for albuminuria with two specimens. He found that the specific gravity of the Spiegler-Jolle test solution, consisting of 4 g. bichloride of mercury, 4 g. succinic acid, 4 g.

sodium chloride and 100 c. c. of distilled water, was so near that of ordinary urine as to make a distinct ring in albuminous urine impossible. This test solution detects one two-thousandth of a gr. of albumin in a liter of water. Dr. Ravold found that by adding a saturated solution of magnesium sulphate C.P. to the Spiegler-Jolle solution the specific gravity of the combined solutions was increased over that of urine without impairing the testing of the solution. The improved solution gives a distinct, stable, contact ring with albuminous urine. This was demonstrated in two specimens of urine which did not show traces of albumen by the heat and nitric acid test, and which showed casts when examined microscopically. Discussions by Drs. Jacobson and King.

Dr. H. S. Crossen presented a report of two cases of brachial paralysis following surgical anesthesia, also charts and a demonstration on the cadaver of how this is caused. The demonstrations showed that the paralysis is caused by pressure of the soft parts surrounding the brachial plexus against the first rib, the clavicle being nearer to the rib when the arm is carried above the head than it is in the normal position of the arms. In holding the arm above the head for a prolonged period of time considerable continued pressure is applied over the brachial plexus. This form of brachial paralysis is rather frequent, and the demonstrations proved that liability to such should be prevented by allowing the arms to lie in a more natural position while an anesthetic is used. Recovery from this form of paralysis is rather rapid for a short

time, and is then very slow for many months. The usual treatment is hot applications, electricity, massage and passive motion. Discussions by Drs. Deutsch, Jonas, Bliss, Schwab, Carson, Blair, Ehrenfest and Campbell.

Dr. F. W. Abeken presented a paper on a curious case of vitality and prolonged preservation of life, with an unusual multiplicity of grave pathological conditions of important organs. He also presented specimens taken from the heart and lungs. The patient had been under observation of Dr. Abeken for a number of years, was a blacksmith and had had syphilis. He died of pneumonia at the age of eighty, and a post mortem examination revealed a calcarious encasement of the spleen, a calcified gumma, size of small egg, in one lung and a calcareous condition of the cardiac valves and beginning aorta.

Dr. V. P. Blair demonstrated a method of determining the exact location of any individual vertebra, also a method of locating a line from the twelfth dorsal vertebra to the eleventh rib so as to be below the lower pleural boundary. He stated that this may be of considerable value in diagnosing certain pathological conditions, also to the operating surgeon.

Dr. Davis Forster presented a paper on "Uterine Replacement." Dr. Forster advocates the thorough examination and repair of any existing cervical lacerations which tend to prolong the engorgement of the uterine vessels, and in mild cases of malposition the use of a suitable pessary. In his practice over 5 per cent of cases so treated have been benefited without operative procedure, and he believes that even a greater percent-

age of benefits may be obtained by using the pessary. In severe cases ventro fixation and suspension has given good results. Discussions by Drs. Hill, Kieffer and Morris. Dr. Kieffer stated that Kellog's modification of Alexander's operation was a logical procedure, and that by thorough understanding of its technique, was a simple and very effective procedure.

The society adopted resolutions presented by Dr. Homan relative to a change in the system of control and management of our municipal hospitals. A committee consisting of Drs. R. Leudeking, A. R. Kieffer, G. M. Phillips, Bransford Lewis and J. H. Simon was appointed to confer and co-operate with members chosen from the several medical and surgical societies of the city. The committee will formulate new plans and an improved system for regulating the hospital affairs, which, on approval of the society, will be recommended to the legislative bodies of St. Louis for consideration and action.

The following new members have been elected: Dr. G. Gellhorn, Dr. R. C. Forsythe, Dr. R. H. Kuhman, Dr. H. Muetze, Dr. R. W. Mills, Dr. T. R. Ayers, Dr. F. G. A. Bardenheier, Dr. R. P. Scholtz, Dr. Chas. Tooker, Dr. W. U. Kennedy.

C. H. SHUTT, Reporter.

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#### COOPER COUNTY MEDICAL SOCIETY.

Dr. P. L. Hurt, President.

Dr. R. S. Holman, Secretary-Treasurer.

The Cooper County Medical Society held its regular monthly meeting January 3d. Dr. P. L. Hurt in the

chair. The minutes of the previous meeting were read and approved. A case of strangulated hernia was reported by Dr. F. H. Smiley; he had operated on the case and recovery was uninterrupted. A paper was read by Dr. Hurt; subject, "Labor and its Proper Management." The paper was discussed by all present. A letter of dismissal was granted Dr. J. D. Potts to join the St. Louis Medical Society. There being no further business the meeting adjourned to the first Tuesday in February.

R. S. HOLMAN, Reporter.

#### JACKSON COUNTY MEDICAL SOCIETY.

Dr. Robert T. Sloan, President.

Dr. Max Goldman, Secretary.

Dr. L. W. Luscher, Treasurer.

The scientific program presented before the Jackson County Medical Society at its regular meeting on February 23, 1905, consisted of two papers, both of which elicited considerable discussion; one by Dr. J. Q. Chambers, on the subject "Chorea;" the other by Dr. H. C. Crowell, on "Vaginal Coeliotomy." Dr. Chambers' paper was an instructive consideration of this disease of the nervous system, special reference being made to its etiology, varieties, and relation to some infectious diseases. It was filled with valuable suggestions and from the point of view of thoroughness, evidenced no inconsiderable amount of study on the part of the essayist. It included also a report of some cases which recently came under the observation of the author.

The discussion was opened by Dr. John Punton, who, in the course of his remarks, emphasized the more im-

portant topics of the paper; such as the classification of the types or kinds of the disease, the question of its infectious character and its relation to rheumatism, which is especially significant. He concluded by summing up the treatment of this affection as follows: (1) Remove the cause; (2) allay nervous symptoms; (3) improve the nutrition.

The paper by Dr. Crowell, on "Vaginal Coeliotomy," was one of much practical value and interest. The doctor received the advantages of this operation in many cases over abdominal section, and reported a number of instances recently observed to illustrate many of the claims made by him in favor of this method of operative interference for diseases of the pelvic organs.

Dr. Thomas J. Beattie opened the discussion; he compared the practical value of the vaginal with that of the abdominal operation, and prophesied that in the near future the former will be more often selected by surgeons for the reasons outlined in Dr. Crowell's paper, viz., the advantage of good drainage, less shock, more speedy recovery and avoidance of abdominal scar and hernia.

#### MEETING OF MARCH 9TH.

The Jackson County Medical Society met in regular session March 9, 1905, the vice-president, Dr. E. H. Thrailkill, in the chair. There was a large attendance and many of those present took part in the discussion of the subject presented before the society.

Dr. William Frack read a paper entitled "Staphylococcic Diseases of the Skin." The paper was of value,

chiefly from the standpoint of differential diagnosis from other infective skin inflammations. A number of diseases of the skin due to staphylococcal infection were considered.

The discussion was opened by Dr. J. P. Knoche, who commented upon the value to the general practitioner of the consideration of such a subject. In the course of his remarks he mentioned epidemics of staphylococcal infections of the skin which had come under his observation, and he alluded to the care which should be exercised in preventing the spread of such contagious affections. He spoke of several skin diseases of children due to staphylococcal infection.

Two interesting cases of hydronephrosis were reported; in one the renal substance had degenerated almost entirely and became enclosed, together with a large amount of fluid, in a dense fibrous capsule; in the other case the operation consisted of incision and drainage, with elevation and fixation of the kidney structure. In the latter case some renal substance still remained, and when it was found by irrigation with solution of methylene blue that the ureter was not obstructed by a twist or stone, the above procedure was indicated and was resorted to at the time the case was reported, there were encouraging prospects of closure of the fistulous tract and restoration of some of the renal function.

The discussion was opened by Dr. A. E. Hertzler.

Dr. E. L. Russell presented and reported in detail a case of acute endocarditis resulting in a mitral regurgitation, occurring after several rather mild attacks of inflammatory rheuma-

tism in a boy seven years of age. The sound heard in this case, in addition to presenting all the classical features of mitral insufficiency murmurs, was characterized by a marked musical intonation that could be heard very clearly through the chest wall. In the report of this case Dr. Russell remarked that there was undoubtedly some relation between the heart lesion and the rheumatism, chorea and tonsillitis, which the little patient had experienced at various times.

Dr. B. H. Zwart, in opening the discussion of this case, emphasized the importance of diagnosis and prophylaxis in all cases of endocardial inflammation; and with reference to prophylaxis said that physicians should be especially careful in their treatment of any of the infectious diseases; they should constantly observe the condition.

MAX GOLDMAN, Secretary.

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#### MISSISSIPPI COUNTY MEDICAL SOCIETY.

Dr. P. P. Boggan, President.

Dr. W. P. Howle, Secretary.

Dr. A. W. Chapman, Treasurer.

The Mississippi County Medical Society met in regular session at Charleston, March 6th, Dr. John M. Rowe occupying the chair in the absence of the president. The minutes of the January meeting were read and approved. A motion to have the secretary revise the delinquent list carried. On motion, a call meeting was ordered for April 3d, when steps will be taken looking to the entertainment of the Southeast Missouri Medical Association, which meets in Charleston on the first Tuesday in

May. Gen. J. J. Russell was selected to deliver the address of welcome.

W. P. HOWLE, Reporter.

### BUTLER COUNTY MEDICAL SOCIETY.

Dr. W. A. Kendall, President.

Dr. J. J. Norwine, Secretary.

Dr. B. C. Jones, Treasurer.

Friday, March 10th, the Butler County Medical Society held its regular meeting in Poplar Bluff. Dr. J. M. P. Smith presided. Dr. J. J. Norwine reported two cases of diphtheria occurring in his practice in February. Cultures made the diagnosis positive. Following the use of antitoxin both cases made uneventful recoveries. The report brought forth liberal discussion. J. J. NORWINE, Reporter.

### MACON COUNTY MEDICAL SOCIETY.

Dr. E. S. Smith, President.

Dr. G. B. Rush, Secretary.

Dr. W. H. Miller, Treasurer.

The Macon County Medical and Surgical Society held its regular meeting in the office of Dr. G. B. Rush at Macon, Missouri, Dr. Smith in the chair. Resolutions were adopted endorsing the medical practice act and the secretary was instructed to forward the same to our representative and senator in the legislature, urging their vigorous support of the same. Two clinical cases were presented—one a case of chronic interstitial nephritis in its incipient stage, another a case of chronic interstitial nephritis in a very advanced stage. The discussion of these cases consumed the time. The importance of the early recognition of this disease was emphasized as well as the necessity of a

microscopic examination of the urine for tube casts. Resolutions were adopted extending the sympathy of the society to Dr. J. F. Campbell, of Callao, in the serious illness of his wife. Arrangements were made and committees appointed to have a dinner at the June meeting, and Hon. B. E. Guthrie was invited to deliver an address on legal medicine at that time.

Q. B. MILLER, Reporter.

### PLATTE COUNTY MEDICAL SOCIETY.

Dr. R. P. Davis, President.

Dr. G. C. Coffey, Secretary.

Dr. S. Redman, Treasurer.

The regular monthly meeting of the Platte County Medical Society was held in Platte City on the 1st day of March, Dr. R. P. Davis presiding. Dr. S. Redman reported a very interesting case of fracture of the outer third of the clavicle, in which there resulted decided atrophy and impaired function of the muscles of the arm. Dr. C. H. Chastain read a paper on iritis which is due in the majority of cases to syphilis, gonorrhoea, tuberculosis or rheumatism. Occasionally traumatism is the etiologic factor. The pupils are contracted and irregular and there is marked photophobia. In every examination of the eye where there is suspicion of iritis care should be taken to differentiate it from conjunctivitis as lack of proper treatment in case of iritis may result in much harm. Atropin in 1 per cent. solution is indicated in iritis. Dr. E. McD. Coffey introduced for discussion the subject of postpartem hemorrhage. He related experiences of fifty years ago and of today and pointed out that there has been little change.

He used then as now Crede's method of expelling the placenta, ice applications and ice internally, apple vinegar in the uterus and pressure. The subject called forth much discussion and many interesting and instructive experiences were related. The application of Dr. W. H. Lindley, of Weston, for membership was presented before adjournment. The next meeting will be held Wednesday, April 1st.

GRUNDY C. COFFEY, Reporter.

#### ST. LOUIS COUNTY MEDICAL SOCIETY.

Dr. H. G. Wyer, President.

Dr. H. T. Randle, Secretary.

Dr. C. L. Armstrong, Treasurer.

The regular meeting of the St. Louis County Medical Society was called to order in Clayton, on the 8th of March. The minutes of the previous meeting were read and approved. Committees reported as follows: Drs. Carter, Higgins and Cape, the committee on Resolutions, reported having drafted and forwarded to the state board of health resolutions favoring a state sanatorium for consumptives. The committee on meeting place, consisting of Drs. Randal, Koch and Moore, reported having secured a room in the McElhiney Building. The reports of these committees were accepted and the committees discharged. A vote of appreciation was tendered Mr. Broadhead for the use of his office as a meeting place for the society. The name of Dr. Beck, of Carondelet, was presented for membership. At the next meeting of the society will vote on the names of Drs. Hanpeter, Berry and Beck for membership. A communication from the

state board of health, regarding the open letter to the public written by Dr. John D. Seba, of Bland, relative to the medical bills before the house, was read, but as the communication was received too late for action to be reported before the adjournment of the senate, it was laid over. The society expressed itself, however, in favor of the state board bill. Dr. Howard Carter read a very instructive paper on pediatrics, after which the society adjourned to meet on the second Wednesday in April.

H. T. RANDLE, Reporter.

#### CASS COUNTY MEDICAL SOCIETY.

Dr. R. D. Ramey, President.

Dr. J. S. Triplett, Secretary-Treasurer.

The Cass County Medical Society met in regular quarterly session at Harrisonville, March 2, 1905, Dr. R. D. Ramey in the chair. The principal paper of the afternoon was read by Dr. F. W. Foster, of East Lynne, his subject being "Gall-stones." This paper, which was well prepared and gave the latest teachings on the various phases of the subject, was discussed at length by Drs. Overholser, Adair, Triplett, Farrow and Ramey, who complimented the essayist on the excellence of his paper, and narrated cases in point from their own practices.

A quiz on "Endocarditis and the Various Valvular Diseases of the Heart" was conducted by Dr. M. P. Overholser.

Dr. Overholser announced that at a recent meeting of the state judicial council, held at St. Louis, arrangements were made to have Dr. McCor-

mack, the national organizer, address the physicians of Cass county while on his itinerary of western Missouri. The date and place of this meeting will be announced as soon as possible, and all the physicians of the county urged to attend, as it will be a rare treat to hear Dr. McCormack. The society adjourned to meet at Harrisonville, June 1, 1905.

J. S. TRIPLETT, Reporter.

#### BUCHANAN COUNTY MEDICAL SOCIETY.

Dr. P. I. Leonard, President.

Dr. C. W. Fassett, Secretary.

Dr. A. B. McGlothlin, Treasurer.

The regular meeting of the Buchanan County Medical Society was held February 18th, with attendance below the normal. The feature of the session consisted of reports of clinical cases by Drs. Wallace, Geiger and Campbell. An unusual case was reported of influenza, followed by the onset of a general peritonitis with consequent intestinal paresis. An operation was performed for intestinal obstruction. A diffuse peritonitis was found, but nothing discovered to account for it. The small intestine was greatly distended, and careful examination failed to reveal any mechanical cause for the paresis. The question which arose in this case was whether the influenza bacillus may not have been the chief causative factor in the production of the peritonitis, either through the circulation or by direct extension from the lumen of the bowel, as there had been in this instance a previous enteritis of a few days' duration. Several other similar cases were reported. A letter from Dr. Delafield of New York was quoted,

in which he claims to have no knowledge of peritonitis caused by the bacillus of influenza. The first meeting of the month of March was held on the 4th. Dr. C. A. Good presented a carefully prepared paper on "Gonorrhœal Diseases Other Than Those of the Genito-Urinary Tract." This paper was well received and generally discussed. Several interesting clinical cases were reported.

L. A. TODD, Reporter.

#### STODDARD COUNTY MEDICAL SOCIETY.

Dr. R. Corbin, President.

Dr. John Ashley, Secretary.

Dr. S. M. Evans, Treasurer.

The Stoddard County Medical Society met in regular quarterly session Wednesday, March 1st, at Masonic Hall, Bloomfield. Dr. D. R. Corbin presiding. The president appointed committees as follows: Committee on Public Health, Dr. T. B. Wingo of Dexter, Dr. L. Burris of Puxico and Dr. B. J. Cline of Ardeola. Board of Censors—Dr. J. A. Tiller of Leora, Dr. W. M. Evans of Bloomfield and Dr. W. C. Caldwell of Essex. Dr. Geo. W. Vernon, of Dexter, was elected reporter for the year, and Dr. T. C. Allen, of Bernie, was elected delegate to the State Association, Dr. Vernon alternate.

Dr. F. B. Wingo read a paper on "Diphtheria," which he defined as a specific infectious disease, characterized by local fibrinous exudate, usually upon a mucous membrane, and by constitutional symptoms due to the toxine formed, principally at the site of the lesion and carried throughout the system. Diphtheria is definitely diagnosed from other membranous

affections by demonstrating the presence of the Klebs-Loeffler bacillus. Membranous pharyngitis of scarlet fever closely resembles diphtheria, but the fever is higher and more nearly continuously high, the edema greater, and the extension of the inflammatory processes to the eustachian tubes more nearly constant. The characteristic eruption, and the absence of the Klebs-Loeffler bacillus, makes the diagnosis positive. The prognosis, which formerly was very bad, mortality from 45 to 64 per cent. is now guarded with the mortality reduced to 15, or in many epidemics even as low as 5 per cent. This very great improvement being due to the introduction and the extensive use of antitoxin. As to the treatment, the patient should be isolated and the strictest hygienic rules observed to the letter, good, nutritious, easily assimilated food; stimulants; (alcohol preferably) pushed to the limit if signs of exhaustion develop. The essential treatment is the administration of antitoxin, not less than 3000 units, as early as possible, and repeated in twelve hours if no great improvement is noticed. If the patient be seen late when there is progressive asphyxia, loss of voice, dyspnea, stridor, recession of chest and abdomen, either intubation or tracheotomy should be performed at once; intubation if the child be under three years, tracheotomy if over four years of age.

The discussion of the excellent paper was general. Dr. Allen said he did not feel that he was entitled to express his views in the matter as they were entirely theoretical, he having never seen a case of diphtheria. He enjoyed the paper very much, and if

called upon to treat a case would use antitoxin. Dr. Evans wished to congratulate the essayist on the delightfully entertaining and logically instructive manner in which he presented the subject. He would use antitoxin, stimulants, iron and quinine. Dr. Turnbaugh stated that he was very sorry to have come in too late to hear the paper, which he understood to be a most excellent one. He reported four cases in one family. The first to develop found him unable to obtain antitoxin in time, so he used iron and potassium chlorate locally and internally together with stimulants, but lost the patient. The antitoxin having arrived in time for the other patients, the children were given 1500 units each and the mother 3000, all three making uneventful recoveries. Dr. Ashley reported a case in his practice in 1890, which illustrated the danger of forcibly removing the membrane. The patient, a girl, sixteen years of age, was treated symptomatically and supportively, and seemed to be making satisfactory progress. The parents, however, were not altogether satisfied and called another physician, who swabbed the throat with guaiacol, using sufficient force to tear away the membrane. The patient promptly became worse and died. Dr. Vernon had not seen a case of diphtheria for several years, but reported the last two cases he had had. In these he used coal oil freely, both locally and internally, in addition to supportive measures. Both cases recovered. Dr. Wingo, in closing the discussion, stated that in a series of forty cases which he had seen with his preceptor, all but two recovered under the antitoxin treatment,

and those two were seen too late.

Dr. Corbin introduced the subject of "Fees and Collections" for general discussion, stating that this is always a subject of special interest to the doctor. Dr. Corbin expressed the hope we all have in the matter, that the physicians of Stoddard county may be aroused to formulate some plan whereby we may cease being the victims of "dead beats." Most of us are practicing medicine, not alone for pleasure or our health, but in order to make a living, and to lay up sufficient for our declining years. The worthy poor should be treated conscientiously, but the dead beat should receive nothing more than he pays for. By standing together as other business men do, the doctors might keep fees at the proper mark and do away with all unworthy, bad-pay or no-pay practice. The discussion of the subject was general and resulted in a common understanding that at the next meeting there will be a comparison of notes and a list made

of those able to pay their doctor's bills who do not.

GEORGE W. VERNON, Reporter.

### AUDRAIN COUNTY MEDICAL SOCIETY.

Dr. C. A. Rothwell, President.

Dr. E. S. Cave, Secretary-Treasurer.

The Audrain County Medical Society met March 6th in regular session in the office of Dr. E. S. Cave at Mexico. Dr. C. A. Rothwell presiding. The minutes of the previous meeting were read and approved. Dr. C. A. Rothwell, the newly elected president, upon assuming the duties of the office for the year 1905, in a well chosen speech, thanked the society for the honor bestowed upon him and promised to faithfully perform the duties of the office to the best of his abilities. Dr. Cave read a paper on "Puerperal Eclampsia." General discussion followed. Dr. Lanier, of Martinsburg, was appointed to read a paper at the April meeting. Adjournment was followed by an informal smoker.

E. S. CAVE, Reporter.

## SOCIETY PROCEEDINGS.

### ST. LOUIS MEDICAL SOCIETY.

#### BRACHIAL PARALYSIS.

Meeting of February 25, 1905.

Dr. H. S. Crossen read a paper on this subject, for which see page 526.

#### DISCUSSION.

Dr. Ernst Jonas said that inasmuch as Dr. Deutsch had asked him to present a translation of his thesis, he had prepared a brief resume of the paper which was written in 1895, for the purpose of getting his degree at the Berlin University. He had described two cases which occurred in the clinic at Berlin.

At that time he had not made so searching a review of the literature on the subject as he would have done later, so he was sure many cases had escaped his attention. Dr. Jonas' abstract was as follows:

Now, if we care to review once more the views of the different authors on the subject of the origin or causation of the paralysis following anaesthesia, we find them all with the exception of one case (3) of Bridinger's, which, from the findings at the autopsy, he

classes as belonging to the cerebral kind, all to belong to the domain of peripheral paralyses. Here, too, there remains in this regard no doubt that these peripheral paralyses are caused by forcible elevation backwards and upwards of the arm, by which a decided pressure against the brachial plexus is exerted. The point at variance among authorities in the literature is as to where the pressure on the plexus takes place.

After the experiments of Bernhardt and Braun, they concluded that the paralyses following anaesthesia are due to the fact that the clavicle, in the elevation of the arm, presses the plexus against the transverse processes of the sixth and seventh cervical vertebræ.

However, that this view is entirely wrong is easily proven by anatomical study, by which one sees that even during extreme elevation, at no time is it possible to find the cervical vertebræ in such a position that makes compression of the nerve plexus possible. Further investigations by Budinger, Kron, Gaupp, and at that time by myself, showed a different point of pressure upon the nerves. These various studies showed that it is the first rib against which the nerves are pressed by the clavicle in extreme elevation of the arm. That this is the correct opinion can be easily demonstrated on the cadaver. Then, too, besides this paralysis caused by pressure on the plexus, we may get paralysis of the individual nerves by pressure of the head of the humerus in the axilla. Sometimes, also, individual nerve paralysis is caused by pressing the arm against the edge of the operating table.

While there are different views in regard to the point of pressure in this class of cases, the authors all agree that the compression causing these paralyses is always brought about by the forcible and extreme elevation

of the arm. Even though in the last years attention has occasionally been called to this very important condition, still not enough care is exercised as to the position in which the arm should be held during anaesthetics, especially those that consume about an hour or longer. If the operators, as well as their assistants, who look after the anaesthesia, would give this subject more attention, then truly this class of paralyses which, according to my opinion, happens more often than we are lead to believe, from the scarce reports in the literature, then, indeed, this class of paralyses will occur less frequently, or, perhaps, not at all. Any one who has ever witnessed the sorrowful countenance shown by the patient who on awakening from the narcosis notices that his arm is completely paralyzed, made worse by the knowledge that such paralysis may last for months and months before such an arm is again absolutely restored to its former function, will be only too willing to avoid such a possible calamity by seeing that the arm is not elevated above a right angle to the body. Of course, also, attention must be paid to such proper position of the head and neck, so as to avoid any tension on the nerve trunks. This can be readily accomplished by placing the head on a pillow and should the patient vomit, by turning the head towards the side of the elevated arm.

Dr. Hugo Ehrenfest had been struck by the fact that in the cases mentioned by the essayist the left arm was the affected one. It called to mind the habit of anesthetists of pulling up the left arm to watch the pulse, but in glancing over the dissertation of Dr. Jonas he noted that the majority of the cases collected by him had occurred on the right side.

## UTERINE REPLACEMENT.

Meeting of March 11, 1905.

Dr. Davis Forster read this paper with the above title, for which see page 555.

### DISCUSSION.

Dr. Roland Hill said that in one case that he knew of personally where a ventrofixation

was made the patient had died afterwards in a pregnancy. In cases where a simple ventrosuspension was made the condition was favorable to strangulation of the bowel. Two of the best methods Dr. Forster had not mentioned. One was that of Dr. G. W. Noble, of

Georgia. A transverse incision was made one and one-half inches above the pubes, the fascia cut, the transversalis muscle separated, the round ligaments caught and drawn together and stitched in place. The strongest part of the ligament was thus right over the rectus muscle. Another operation done quite extensively was that of Clarence Webster. The round ligament in that operation was pushed through the broad ligament and stitched for support behind the uterus, but that left a band of ligament at its weakest point. Another good method was that of Simpson, in which the ligaments were drawn in front of the transversalis fascia and stitched together so as to shorten them just in front of the peritoneum.

Dr. A. R. Kieffer said that the operations for replacing the uterus and holding it there were divided into two classes: those in which there was the factor of subinvolution, and those in which that factor was not present. Subinvolution of the uterus simply meant subinvolution of the round, broad and utero-sacral ligaments. These cases usually had this subinvolution, due to an injury to the cervix which, when repaired, as stated by the essayist, brought about a restoration of normal conditions, the uterus being temporarily supported with a pessary. In the other class there was a laxity of the tissue and the uterus would not stay in position. This was usually found in young women in poor health. Where there were no adhesions and no disease of the ovaries or tubes, shortening of the round ligaments in such cases was the ideal operation, because it left the round ligaments most nearly in their natural position. The Kellog modification of the Alexander operation was the best method, which was to find the ligament soon after it entered the canal and then strip it out. The speaker had never had any difficulty in finding the ligament here. He located the incision on the abdomen by the location of the femoral artery where it passed under Poupart's ligament. He cut just above Poupart's ligament and inside of the internal abdominal ring. In that location an incision an inch long was sufficient. After dividing the tissues to the external oblique he separated the fibers of the aponeurosis of the external oblique just above Poupart's ligament, and just inside of the deep epigastric artery. One would be hindered by the fibers of the

internal oblique if he got too close to the epigastric. The artery and its veins must be avoided. By reaching in with a dull hook, keeping the point against the aponeurosis, the ligament could usually be gotten the first time, but if not the operator could hold the structures obtained and try again. The fascia should be carefully divided and the ligament could be stripped out without any danger of fracturing the ligament or stripping off any of its fibers and weakening it. From four and a half to six inches would have to be drawn out before the uterus could be gotten into position. The normal attachment should be left as it was, for it aided in maintaining the nutrition of the ligament. After pulling up the ligament the peritoneum would be found surrounding it and had to be peeled off. This finished he would have a long loop of sound ligament with normal attachments at each end. He put in one suture through one border of the opening he had made, then caught a little of the ligament and the border of the aponeurosis on the other side and tied that. He then made a puncture through the aponeurosis of the ex-oblique one-half inch above the point of first puncture, and another about three-fourths of an inch above that, the loop of ligament being drawn into the second puncture and out at the third with a very narrow tape, which would not injure the ligament at all. He used a very fine cat-gut, taking up a little of the border of the proximal limb of the loop of the ligament at each of these punctures and then fastened the end of the loop as far away from that as possible. The ligament is fed chiefly by a central artery which must not be included in any of the sutures. The greatest objection to the intraperitoneal operation in the class of cases first described, was that these operations were done in this class of cases for trouble that did not hazard the life of the patient. The patient was not in danger and he questioned whether one was justified in opening up the abdominal cavity under the circumstances. He knew of several cases that had died from opening the abdomen to suspend the uterus. If an infection was set up by the Alexander method, though the result of the operation might be spoiled, the patient would not die. The more experience one had the easier it was to find the ligament. It had been said that the ligament would break and give way.

Emil Ries, of Chicago, at a meeting of the American Medical Association, had challenged anyone to prove one case where the ligament had broken or given way, and no one had answered the challenge.

Dr. C. C. Morris said that a point or two in Dr. Forster's paper not mentioned by other speakers, was in reference to the support of the uterus aside from these operations, namely, the pessary. In his own experience he had not been able to give to the pessary the praise that had been allotted to it by Dr. Forster, that five to fifteen per cent. of the cases were benefited. On the other hand, more harm had been done than good accomplished. If used in subinvolution, which always existed where there was a laceration of the cervix, the majority of these cases got worse instead of better. The interference with the circulation increased rather than diminished the subinvolution, hence he had discarded many years ago every kind of pessary. The operation just discussed by Dr. Kieffer was perhaps the best method of procedure, where it was to be done extraperitoneally. With Kelly's operation he had had more experience. The idea that it interfered with subsequent pregnancies was more theoretical than practical. He had heard from a physician in Illinois for whom he had done a ventro-suspension two years ago. He wrote that the patient was pregnant and that he was making close observations, and that the patient had experienced no inconvenience as a result of the operation. In due time he wrote that he had delivered the patient of a healthy child in normal labor, and that the uterus was in proper position afterward. So the Kelly operation should not be condemned simply because of a theoretical idea that it would interfere with future pregnancies. There were cases where the results could be

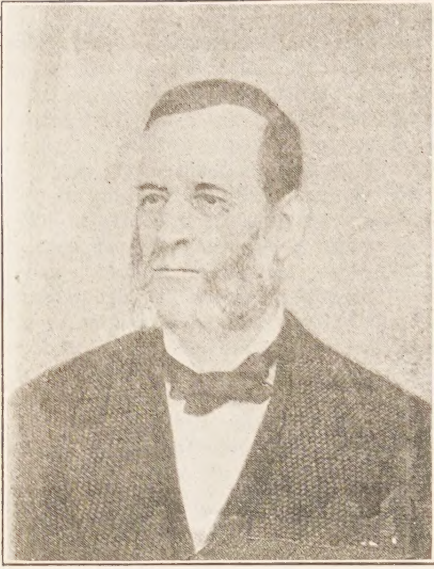
better accomplished by intraperitoneal operation than by the Alexander method. This patient not only had a misplaced uterus but a subinvolution of all the organs, and in many of these cases there was also a laceration of the cervix and a laceration of the perineum. As to the dangers, he could hardly conceive of the danger Dr. Kieffer had mentioned. Although cases might be infected, yet there should not be one-tenth of one per cent. of deaths in that class of work. Modern methods of operative procedure ought to preclude any possibility of danger. Infection would not be an element that would deter him from entering the abdominal cavity.

Dr. Forster in closing said he wished to emphasize the value of the Kellogg and the Gilliam operations in properly selected cases. The points in the Gilliam operation, consisting first of a medium incision, through which the pelvic contents might be inspected. Then with retractors on each side the recti muscles are pulled away from edge of wound and the internal oblique muscle, fascia and peritoneum are included in grasp of vulsellum forceps. Then punctures made through these structures, grasping tape surrounding round ligament and drawing round ligament through this puncture in the peritoneum fascia and internal oblique muscle and sewing it in that position.

It was an operation which must win favor. With regard to use of pessary, he believed he was conservative in saying that 5 per cent. of cases in which pessaries were used in conjunction with other treatment, the results were beneficial. Where the cervix was repaired before the pessary was applied, the number was increased to 15 per cent.

While another might do better with some other methods, after all our judgments were based on our own individual experience.

## BIOGRAPHICAL SKETCHES.



AUSTIN FLINT.

Austin Flint was born in Northampton, Massachusetts, March 28, 1836. After graduating at Harvard University, he attended the University of Louisville, where he received his medical degree in 1856. In 1857 he graduated at Jefferson Medical College, and in 1858 was made professor of physiology and microscopical anatomy in the University of Buffalo. In 1859 he accepted the chair of physiology in the New York Medical College, and in 1860 a similar professorship in the New Orleans Medical School. In 1861 he was elected professor of microscopical anatomy at Bellevue Medical Hospital, and in 1862 returned to the teaching of physiology as professor in the Long Island College Hospital. His most exhaustive work is his "Physiology of Man," although this great work never attained the popularity of his text book of "Human Physiology," which appeared in 1876.



DAVID HAYES AGNEW.

David Hayes Agnew was born in Lancaster county, Pennsylvania, November 24, 1818. He graduated at the medical department of the University of Pennsylvania in 1838, and set up in practice at Philadelphia, where he accepted a lectureship in anatomy in the Philadelphia School of Anatomy. In 1854 he was appointed surgeon at the Philadelphia Hospital, the pathological museum of which institution he founded. For twenty-six years, 1863-89, he was a member of the medical faculty of the University of Pennsylvania, being elected professor of operative surgery in 1870 and professor of principles and practice of surgery the following year. When President Garfield was fatally wounded, in 1881, Dr. Agnew attended him as operating surgeon. Among his several works, the most important was "The Principles and Practice of Surgery," in three volumes. He died in Philadelphia March 22, 1892.

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